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THERMO-THERAPEIA (THE HEAT-CURE):

OR, THE TREATMENT OF DISEASE BY IMMERSION OF THE BODY IN HEATED AIR.

By ERASMUS WILSON, F.R.S.

For a knowledge of thermo-therapeia, medical science is indebted to Mr. Urquhart.

Thermo-therapeia is the application of atmospheric air at a high temperature to the surface of the body, for the relief of pain and disease. The poets use the expression, "bathed in light"; if we adopt the same language in reference to air, we may style the process a bathing in hot air or a hot air bath; but in no other sense does the term "bath" apply to its use.

Mr. Urquhart became acquainted with the construction and uses of the thermæ in the course of his travels in various parts of the world, and found it almost universal in cold and temperate climates, but absent in the tropics. By the people among whom it is found, the thermæ is employed as a luxury and a religion, the religion of physical purity, but not as a remedy against disease; it was left to Mr. Urquhart to apply highly heated air as a medicine for the relief of pain and disease, and with the most signal benefit.

The capacity of the human body for bearing dry air at a very high temperature is a matter of common observation; we see it in the daily occupations of copper-smelters, steel-pourers, the stokers of steam-engines and gas-ovens, of glass-blowers, porcelain-burners, and in a variety of manufactures and trades. And in a well ventilated thermæ, a temperature of 130° and thence upwards to the temperature of, and above boiling water, is not only bearable but absolutely soothing and agreeable.

If we inquire into the medical history of the men employed in the fiery occupations to which I have just referred we shall find that they enjoy a state of health and longevity above the average of other men. Look upon them, and you perceive them to be strong, well built, muscular men, with that exact proportion of integument and muscle which denotes the nearest approach to the standard of manly beauty and health. The perspiration is streaming over the surface of their naked skin; they aliment the flowing tide, from time to time, with deep draughts of cold water or thin gruel; they frequently pursue their labours in open sheds exposed to a thorough draught of cold air; or, after enduring extreme heat for awhile, they emerge from the atmosphere of the furnace into the open air, naked as they were born, to cool their bodies in the refreshing breath of a north or an east wind. Our over-clothed and pampered skin creeps and shivers in sympathy with the seeming risk and danger of their exposure. But ask these men if they ever take cold, and they will tell you that they do not know the meaning of the word.

Our every-day observation, therefore, teaches us that the human body can bear and labour in high temperatures, not only without inconvenience or distress, not only without the danger of chill from subsequent exposure to cold air; but, on the contrary, with an increase of health, of strength and of condition; in other words, that the body derives from this process those special advantages of condition and power of endurance which are commonly sought for in the process of "training;" in truth, are acquired in no other way than by a systematic training. What a race, marvellous for power and strength and endurance, might not Britons become, exclaimed Mr. Urquhart on a recent occasion, if this kind of training were universal; if the thermæ were to become an institution of common life.

The capabilities of the thermæ for the purposes of training have already been recognised and applied. The readers of the *Field* are prepared to see the barbarous, the injurious, the exhausting process of training by the old method entirely discarded, and to behold the simpler, more natural, and more perfect operations of the thermæ take its place. Not only is the thermal process of training the most advantageous for human beings, but it is also applicable, and has been applied with the most successful results, to animals.

I will endeavour to retrace my own experience, on my first introduction to the thermæ, now, sometime back. It was the winter time, the season bitterly cold; my inception as a "companion of the bath," took place in the private thermæ of my esteemed friend Mr. George Witt, of Princes Terrace, Hyde Park. As an example of simplicity of construction, Mr. Witt's thermæ may be usefully taken as an illustration. He had at the back of his house, a room twenty feet long by ten feet in breadth and twelve feet high, with a window looking out upon a lead-flat such as is common in London houses. To convert this room into a thermæ he divided it into two compartments by means of a wall which crossed it at about one third from its further end. He had, thus, two apartments, an outer one, the cooling room or *frigidarium* of the Roman thermæ; and, an inner one, entered by two small doors (inner and outer) in the partition wall, the *caldarium*, *calidarium* or *sudatorium*. To secure the detention of heat in the calidarium, a lath and plaster lining was placed inside and at the distance of a few inches from the wall and the space filled in with sawdust, and the floor was paved with earthen tiles bedded on concrete. Outside the room, on the lead-flat, an opening was cut through the wall for the construction of a common furnace; the furnace encased with brickwork entered the calidarium and its flue was carried around the apartment close to the floor. Having completed the circuit of the room it was made to ascend a few feet, then carried transversely across the end of the room above the furnace, and subsequently permitted to escape at the corner of the ceiling into an outside chimney. The entire length of the flue was thirty-five feet, and as it was propped from the floor by means of a brick placed at short distances and a space left between it and the wall, the whole of its external surface was free to radiate its heat in all directions and communicate its temperature to the air of the apartment. A thick plate of glass let into the outside wall gave light to the room, and four holes, two below and two above, piercing the wall and furnished with the moveable plugs, afforded sufficient ventilation. Add to this description a wooden seat supported on the flue; a platform, which afforded additional sitting room over the masonry of the furnace; and a wooden couch, the *duretum* of the Romans, and the calidarium is complete.

Having left my garments in a portion of the outer apartment which served as a *vestiarium*, and girt around the loins with a *cummerbund*, the kilt of oriental nations, I entered the calidarium: the temperature was delicious, such a contrast with the exterior world. The wind and snow were raging without, while here was a paradise of 135 degrees of Fahrenheit. Within this hallowed nook anxiety and care and fatigue, like the burden of Bunyan's Christian, seemed to fall from my shoulders; I stretched forth my limbs in peace and enjoyment; the brain seemed to think more lightly and pleasantly and my ideas flowed brightly and calmly. I longed to compare my sensations with those around me, for I was not alone; that day I was the seventh or ninth "companion of the bath," I scarcely remember which; but I called to mind that the greatest wisdom often lies in silence, and I yielded the pleasure of speaking for the greater pleasure of listening.

My friend, Mr. Witt, in the course of a few minutes was streaming with perspiration which ran down his face in rills

and dripped from his elbows and finger-ends in continuous drops, while my skin was as yet dry. He explained to me that this facility of perspiration distinguished the practised bather from the unpractised, the educated from the uneducated skin; and he reminded me by that remark, how little opportunity the skin has, in this climate, of performing its normal function thoroughly and therefore healthily, and that the function of the skin in the majority of the inhabitants of this island is a dormant function and its purpose as an emunctory to the system almost entirely undeveloped.

I was struck also with the rich and healthy complexion of his skin; it took its hues from the free circulation of the pure arterial stream through the capillary plexus of the derma; as he drew his fingers forcibly across his chest, the white traces left by their pressure were instantly replaced by the glowing vermilion of the arterial flood. There were no gorged capillaries in that skin; no venous transformation in that cutaneous plexus; no deposits of unhealthy colouring matter either in the cuticle or in the tissues beneath; no pallor; no excess and no deficiency of fat; no choked pores; no wrinkles from loss of elasticity and contractility of the fibrous and muscular structures of the corium; no abnormal or deficient sensibility of the nerves; all was, as nature made it, perfect and beautiful. I looked for the first time in my life on a really healthy skin.

How very curious and striking was the difference between my friend's skin and that of everyone present; one gentleman, a finely-built handsome man, with a remarkably-capacious chest, had too great a preponderance of adipose tissue, while the hue of the skin in an oblique light was a bright golden yellow. In another, the muddy tinge of the skin discovered the impure and muddy condition of the blood. The habitual use of the thermæ removes these discolorations, these indications of imperfect elimination, by drainage through the perspiratory system, and while it gives beauty to the skin, bestows health on the entire economy.

Seeing the perspiration flowing in such wonderful abundance from my friend's skin, and observing that he encouraged its quantity by taking frequent draughts of cold water; and led into the same channel of thought by the state of my own skin which was now perspiring actively, I ventured to remark that we were literally supplying the means of washing the body from our inward selves. "It has always been a theme of wonder, in the exploration of the thermæ of the Romans, as also in the examination of the writings of different translators and commentators," replied my friend, "how the Romans could have obtained a quantity of water sufficient to supply all their baths and the vast numbers of bathers who availed themselves of their use; but, it is evident, as you see, that a very small quantity of water for each person to rinse the body, after ablution in its own perspiration, would be all that is needful."

Another inference from these remarks is self-evident, but not the less important. Among our various medical remedies for procuring diaphoresis, a list which embraces antimony, guaicum and ipecacuanha, hot air must take a prominent place. But how different its mode of action! If we ourselves were the subjects of treatment, how infinitely more agreeable should we find it, to convey ourselves bodily into the pleasant and agreeable temperature of the calidarium, than to consign the above nauseating medicines to our stomach. Moreover, the latter may fail; the former cannot fail. The former we can regulate to a nicety; we can procure as much perspiration as we will, we can suspend it when we will; but the antimonial may not do its duty sufficiently, while we dare not give more. The antimonial may be hours before it responds, may need encouragement, assistance; the calidarium breaks down all restraints in a few minutes and needs no second help.

After a free perspiration of half-an-hour's duration I was anointed with soap and had a rub down with a wisp of white fibre called *lyf*, the fibre of one of the palm trees commonly used in the east for the purpose to which it was now being applied. To the friction with soap succeeded a shower of warm water, then a douche of cold water, after which I was made to sit still for some minutes until the warmth of the skin was restored. In Mr. Witt's thermæ the ablutory process is performed in the calidarium, but where space permits, a closet or small apartment is devoted to the purpose and constitutes the *lavatorium*. Not unfrequently, the lavatorium is warmed by a part of the flue of the calidarium and then performs the double office of lavatorium and *tepidarium*. Where a proper tepidarium, having a temperature of 98° exists, it supplies an atmosphere which is intermediate in warmth between the frigidarium and calidarium, and serves as a transition between the two; preparing the skin, by a gentle warmth, before its exposure to the higher temperature on the one hand, and mitigating the extreme of depression of temperature, on quitting the calidarium, on the other.

To invalids, the transitional temperature of the tepidarium is of importance, and suggests one of the precautions necessary to be taken in employing the thermæ as a medicine for the treatment of disease; but where the thermæ is used for the purposes of cleanliness, maintenance of existing health, training, or luxury, then the absence of the tepidarium is of little consequence.

From the calidarium I passed therefore to the frigidarium, on this occasion, mid-winter, and a piercingly cold snowy day, truly deserving its name. I was then *cloaked* in a sheet taken from one of the pigeon-holes of the *columbarium* standing in the corner of the room, my *cummerbund* was allowed to drop on the floor, and I was made to recline upon a cane couch immediately under the open window. How cool and pleasant were the puffs of wind that played over my face and limbs; how different their impression on my skin to what they had been an hour before. I needed not the assurance of my friend that there was no fear of catarrh or bronchitis; my own feelings told me that I could resist any amount of cold, and I was obliged to suppress a longing to walk out upon the leads with no other covering than my sheet, into the midst of the sleet and wind; had the lead-flat been a terrace or a lawn I could not have resisted the temptation.

To a person prone to take cold on exposure to slight draughts of air, this instinct of defiance of cold seemed very strange—one of the phenomena of the thermæ. I was reminded how the inhabitants of countries colder than Great Britain, for example, Tierra del Fuego, go about naked; and I also called to remembrance that our forefathers of England and Ireland, as well as the "naked savages" of Scotland, were equally without covering. The climate is still the same; the difference between the people of those times and these is therefore clearly nothing more than one of habit. The face, which is always uncovered and exposed to every alternation of temperature, still represents our original state of nakedness and endurance, but the rest of the body is swathed in the close folds of a heating clothing and remains for ever etiolated and unnaturally sensitive to painful impressions, while its appreciation of agreeable impressions is proportionately destroyed. I lately saw a child, four years and a-half old, who had been brought up in the constant use of the thermæ and who had never worn clothes. He is a sturdy, healthy little fellow, graceful in his figure and movements, and has the independence of deportment of an Indian chieftain. Blows and outward injuries do not affect him painfully as they would other children; and being met one day playing naked in the snow he was asked whether he was cold: "cold?" said the boy, touching with his finger his chest and cheek, "*yes, I think I am cold.*" It required that he should pass his finger over his body as he would have done over a marble statue to become aware that the surface of his skin was, in external sensation, cold.

"How is it," inquired the Rev. David Laing, "that in my visits among the very poor, I so rarely meet with consumption or serious consequences resulting from exposure to cold." I could not answer that question then, but *now*, I should have no hesitation in replying that the exposure of the poor to cold air gave endurance to their skin and enabled them to resist the influence and the effects of cold. "In my early life," said Miss Jane Porter, one day when we were conversing on a kindred subject, "in my early life I was extremely sensitive to the impression of cold; if any part of my skin, however small, beyond the limits of my face, were exposed only for a few minutes to a draught of cold air, I was immediately seized with catarrh. I longed that my skin should become *all face*, for then it would have had the power to resist the cold." How suggestive these observations are when they are ranged side by side with the remarkable phenomena which are presented to us in following out the operations of the thermæ.

After awhile I exchanged the horizontal position on the couch by the open window, to a sitting posture; the sheet was thrown off from my back and limbs; the moisture of the surface was dried up, no wiping, excepting of the head and face was practised or required, the skin felt smooth and warm, and I was permitted to dress, but with the injunction that I was to dress leisurely, lest the perspiration, which had ceased, should again be excited. It is worthy of notice, that great attention is paid to the temperature of the skin during the curriculum of the thermæ; after the cold douche, we return to the calidarium to recover any waste of heat; and in the after cooling of the body in the frigidarium, the whole of the moisture must be

dried off the skin, and perspiration must be wholly suppressed, as indicated by a peculiar smoothness and polish of the surface, before we are qualified to resume our dress. All clamminess of the skin must have ceased entirely before we resort again to our usual coverings.

Sometimes the flue of the furnace, instead of being admitted into the calidarium, as in Mr. Witt's thermæ, is made to travel under the pavement of the room, making a series of traverses from side to side and representing the *hypocaustum* of the Romans. In this arrangement, the floor is frequently excessively hot, too hot to be trodden by naked feet, and the use of wooden shoes becomes necessary. The thermæ of Mr. Stewart Erskine Rolland, one of our highest authorities on the Bath after Mr. Urquhart, is constructed in this manner. I had recently the gratification of testing the merits of Mr. Rolland's thermæ; the temperature was 160°; the air, being perfectly dry, did not feel otherwise than pleasantly warm; the wooden couches, arranged around the room and covered with soft Turkish sheets, afforded most agreeable reclining and lounging places, and upon these we stretched ourselves at ease while the perspiration burst forth from its seven millions of pores. I then went into a small closet, wherein the temperature was ten degrees higher, the sensible heat being very much increased above that point by the introduction of vapour; and from the hot closet I stepped into the lavatorium, and, after inunction with soap, was greeted with a douche of alternate hot and cold water for the space of some minutes. The sensation of this alternate douche is beyond everything delicious.

Mr. Rolland, like Mr. Urquhart, is an Eastern traveller; his frigidarium is a divan furnished with reclining couches of the most approved oriental character; door and windows were open, to gain as strong a current of air as possible; and here, in the most graceful, because the most natural attitudes of quiescent repose, we sip our sherbet and cool our glowing limbs. Struggler in the sun and dust of hot July, how you envy our enjoyment! Toiler in the mud, the slush, the biting winds and blinding sleet of the wintry world without, what would you not give to change places with us!

But quitting the construction and appliances of the thermæ, the mechanical means, let us inquire, firstly: What are its physiological properties? secondly, what are its medical properties? With its psychological and moral properties we have at present nothing to do; albeit it would not call for much argument to prove that both are elevated and exalted. All agree that the brain never works more pleasantly than in the thermæ; the mind seems cleared of its physical impurities; the godhood of our nature is elicited by the body's purity.

Physiologically we find that a grateful feeling of warmth pervades the entire skin, whatever its previous condition of temperature, of dryness, or moisture; secondly, the skin appears to soften, to become ductile and pliant; thirdly, minute drops of water, gradually becoming larger, stand upon the skin like crystal beads. "I shall tell my friends," said a gentleman to a 'companion of the bath,' a doctor of divinity who was noting this phenomenon, "that I beheld a clergyman of the Church of England, while sitting in the thermæ, piously counting his beads." And soon, these limpid beads, swollen beyond their bound, trickle downwards to the earth. The skin, likewise, loses its accustomed paleness, and becomes more or less reddened; it is clear that the blood is sent more actively to the surface and in larger quantities. The skin of the face and hands is more suffused than the rest of the body and the conjunctivæ are also reddened.

It is evident that the high temperature of the atmosphere of the thermæ is a stimulant of the circulation, of the heart's action in fact; the pulse becomes frequent, and after a time the heart also is felt to be quickened; sometimes a sense of oppression, of giddiness, of faintness, and sometimes, though rarely, of sickness occurs, and the noviciate is constrained to seek the fresh air of the frigidarium. These effects of the thermæ are perfectly natural, perfectly physiological, are exactly what would be predicted by any physiologist to whom the problem were submitted: What would be the effect upon the animal system of an excessively heated temperature? His ready answer would be; the pulse will be accelerated, the heart's action rapid, and according to the degree of temperature or the constitutional susceptibility of the individual, there will be more or less distress of the nervous system. But the same answer applies to a heated state of the body, however induced, whether by extreme heat, as in the Indian camp, during the late campaign, where the thermometer in the tents often reached 140° degrees of Fahrenheit; whether in a sultry day in our own climate; whether in hot rooms; under hot bedclothes; from active exercise; or from the use of diaphoretic medicines.

These remarks are intended to show that the thermæ is not to be trifled with; it is a medicine, a great and a powerful medicine; and can only be applied with safety and advantage by those whose vocation it is to study the physiology of man and to treat his diseases. In the judicious hands of the essentially practical medical man of Britain I look to see thermo-therapeia occupy an useful and a dignified place; and I trust that in a short time, in every small village and hamlet in England, wherever a medical man is found, there also will be found a British thermæ. The medical man will be too happy to make himself the subject of his first experiments, to apprentice himself to an art wherein all is enjoyment; to learn by his own impressions how far he may push the remedy in the treatment of his patient, and how often he may apply it. In his own person he will reap a rich reward; after the cares and anxieties of the day, his thermæ will give him rest and renewed life; his moral atmosphere will be brightened, his spirits revived, his power and usefulness enhanced.

It is one of the first, as it is an hourly matter of duty to the medical man, to reduce to practice the simple problem:—*Given a powerful remedy which may be employed in excess, how shall it be regulated?* It matters not whether the remedy be an aperient or a saline medicine, brandy, tobacco, laudanum, diet, or hot air. It is the business of the medical man to effect this regulation, and he is equal to the task. If the calidarium be too hot, cool it; if the patient be too susceptible, let him retire to the tepidarium; if he cannot support so high a temperature for one hour, let him abide in it for only half or a quarter of the time. I cannot conceive any difficulty on this head, and I cannot realise to my mind any constitution or age repugnant to the remedy if properly and judiciously applied. I am not to be told that because the remedy stimulates the heart, it is not to be used. Every remedy that produces perspiration stimulates the heart, and it is one of the virtues of the hot air that it does stimulate the heart. Nor am I prepared to admit that in cases of disease of the heart the thermæ would be inapplicable. I believe just the contrary, that many diseases of the heart may be cured by a judicious use of the thermæ; and in the very worst cases it would prove to be the best remedy that could be employed.

The natural remedy for accelerated action of the heart particularly when excessive, is the open air; a few chestfuls of air calms the heart's action and all uneasiness passes away; but to prevent the possibility of this inconvenience, the thermal chamber should be sufficiently ventilated. There should be an abundance of oxygen present in the atmosphere and a constant current of fresh unrespired air should be secured. In this respect a large and lofty calidarium has an advantage over a smaller one; but the small calidarium may be rendered equally fresh, by making several perforations through the wall and adapting the means of opening or closing them according to circumstances.

The essence of the quality of a high temperature of air is its dryness. While the human body can support a temperature of 300° and 400° of Fahrenheit in dry air, hot vapour is scalding at 120° and water boils at 212°. A gentleman whom I had frequently the pleasure of meeting at Mr. Witt's, wrote to his friend, in corroboration of the account which had been given him of the heat of the thermæ:—"I have been at Mr. Witt's bath; all that he told us is true. I cooked a mutton chop on my knee! and in eating it afterwards, the only inconvenience that I experienced, was in the matter of the bread; it became toast before I could get it to my mouth!" A dash of water thrown into the thermal chamber is instantly dissipated in vapour, but the temperature although actually reduced becomes sensibly hotter.

The expression "dry air" must necessarily be held to be relative; the air cannot be perfectly dry in an atmosphere traversed with a continuous current of air from without. Each time that the door of the thermal chamber is opened, a rush inwards of cold and moist air takes place; and the body of the entering man gives off its moisture so rapidly, that in a short time, if there be several inmates, the moisture of the air must be considerable. It has been suggested that the highly heated air inhaled into the lungs must prove an irritant to those organs. I have seen no such effect, and can hardly believe it possible; the lungs and fauces are so abundantly supplied with moisture that the air must lose all its dryness before it can reach the bronchial tubes, and I should imagine, even the glottis. But I must confess to have had no experience in the

application of the thermæ to susceptible or diseased lungs. If I might predicate its influence, I should declare in favour of its special adaptation to diseased states of those organs, on account of its powerful derivative action on the skin. If consumption is to be cured, the thermæ is the remedy from which I should anticipate the best chance of success.

But supposing that an instance does occur in which dry air properly ventilated, having a temperature of 130° and upwards does produce irritation of the lungs; how easy to introduce a watering pot and dash a shower through the air. Surely no man could be so unreasonable as to suggest the abandonment of an useful and powerful remedy because in one case, or in one class of diseases, it was inapplicable. My own experience however points to the heart and increased activity of circulation as the real origin of any inconveniences that may be felt in the thermæ; that this increase of circulation may act secondarily upon the lungs as well as upon the brain and nervous system, if allowed to continue, is of course perfectly possible.

But these are matters of detail; not of principle; if the principle be good, be worthy of adoption, experience will soon teach us to adjust it to circumstances, to regulate its application. It is for this we are philosophers of medicine; and in the present instance we have to determine the plus or the minus of temperature; the plus or the minus of ventilation; the minus or the plus of watery vapour. If we require high temperatures to act upon the blood of the cutaneous circulation, to seek out and eliminate hidden and deep-seated morbid changes, it is clear that we must have a minimum of moisture in the atmosphere.

I must again advert to the modifying influences which regulate the temperature. On entering the thermal chamber, the skin feels cold to the touch, it gradually becomes warm, but its warmth never reaches a high altitude; it is moderated by the evaporation from the surface and kept at a genial heat. On the first few occasions the perspiration does not so readily obey the call as it does subsequently; the skin requires practice to bring it into a perfectly respondent state, to cast off the torpor of a life-time and to perform its function healthily. Hence the feelings of uneasiness which occasionally oppress the noviciate on his first visits to the thermæ gradually diminish and at last finally cease. But when they do cease he has the satisfaction of knowing that his whole organisation has become strengthened, that the weak heart has become a strong heart, and that his active vitality is augmented.

The *first* physiological effect of the thermæ is, therefore, *to perfect the perspiratory or eliminant function of the skin;* to give us in fact an organic skin instead of the mere, threadbare, dirty, unwholesome, and almost useless garment of the body that goes by that name. The *second* physiological effect is to make the skin more apt for the performance of a highly important function, *the imbibition of oxygen, a function that renders the skin a breathing organ.* The *third* physiological effect of the thermæ is *to regulate the nervous capabilities of the skin;* to enable it to feel truly and not mendaciously; to distinguish between real and unreal sensation. A *fourth* physiological effect of the thermæ is to promote those changes in the structure of the skin which result in *its perfection as a healthy organ.*

It is common to associate the idea of profuse perspiration with weakness, and to imagine that the effect of abundant perspiration must be the lowering of the system. This idea probably takes its origin in the observation of the exhausting sweatings of fever, of consumption, or debility from whatever cause induced; but it has no abiding place among the true phenomena of the thermæ. The perspiration of the thermæ is a tonic emunctory process of the skin, acting under and supported and kept up by the stimulus of heat. The body feels lighter after these sweatings, as though it had lost something which oppressed it; which is the fact. It represents those other processes of the animal economy, under the influence of which effete and often irritant matter is conveyed out of the system. Mr. Urquhart, Mr. Rolland, and Mr. Witt, pass frequently many consecutive hours in the thermæ perspiring the greater part of the time and renewing the lost moisture of their bodies by the imbibition of copious draughts of water.

In reference to the second physiological effect, I apprehend that there can be no doubt that, in its healthy condition and exposed to the atmosphere, the law of endosmosis which rules over the destinies of the whole of nature, acts upon the human skin as well as upon all other created things, both organic and inorganic. But while I am convinced of the imbibition of oxygen by the skin in a state of health, I am also aware that that action must be immeasurably weakened in the state in which we commonly find it, partially atrophied, excluded from the light and air; and prostrated in tone and power by hot and relaxing coverings. In cutaneous disease the oxygen of the atmosphere plays a mischievous and vexatious part, and if it be susceptible of absorption in disease it must also be capable of traversing the cutaneous tissues in the state of health. Endosmosis operates its results on the human body by a combined electrical and vital agency, and a healthy electrical condition of the skin is amongst its most important properties.

In its function of a breathing organ and a transmitter of oxygen, the blood is the principal agent engaged, and the degree of absorption of oxygen will be determined by the freedom and abundance of circulation through the capillaries of the skin. Now, one of the first effects of a high thermal temperature is to augment the circulation of arterial blood through the skin, to carry the arterial stream into capillaries that have long been inactive, and to bring the circulating blood nearer to the periphery and nearer to the oxygenising element. Therefore the use of the thermæ must tend directly to the oxygenisation of the blood and to the perfection of those nutritive and vital processes that are due to the appropriation of oxygen. The lungs, which are the great oxydisers of the blood are in structure very little different from the skin, the differences between them being more those of position than organisation; the mucous membrane of the lungs is an inverted skin while the skin may be regarded as an everted lung.

The third physiological effect of a thermal temperature, namely, the restoration of the skin to its normal sensibility, is illustrated remarkably in the example of the little boy brought up in the state of nudity and in the constant use of the thermæ; *his skin was all face.* In ourselves, from the habitual use of clothing from our earliest infancy to one part of the body and its absence from another, we are enabled to contrast the power of resistance and endurance of the face with the opposite qualities of the skin of the rest of the body. We are accustomed to regard the skin of the covered parts of the body as more sensitive than the skin of the face; but if we look closely at the matter we shall find that the sensitiveness only applies to its weakness. It is more sensitive to pain and suffering; but less sensitive to ordinary healthy and appreciative sensations; while the skin of the face feels more truly and is less easily excited by painful impressions. When I was invited by Mr. Rolland to enter his hot closet, to pass from an atmosphere of dry air of a temperature of 160°, into one of moist air at 170°, I stepped back for an instant with a feeling of scalding; but it was not the weak and sensitive skin of my body that detected the extreme heat, but the more seasoned and appreciative skin of the face and hands. The experiment, simple as it was, convinced me at once, that from constant covering with clothing, the skin becomes weakened as to its nervous influence and nervous sensibility, possesses a low nervous tone and exhibits a first step towards paralysis of power.

The fourth physiological effect of the thermæ is to strengthen the skin as an organ, independently of improving its function. That the function of an organ must be improved by the perfection of the structure of the organ is obvious, but I now wish to draw attention to an improvement in tone of the organ itself. It is well known that some persons bruise more easily than others; and that the skin is sometimes apt to be bruised by a very trivial cause, the extent and depth of colour of a bruise being no test of the severity of the injury, but simply indicating the softness and weakness of the skin of the individual. We occasionally meet with a deep black bruise as the result of mere pressure without any blow, and an ecchymosed stain from a pinch or grasp is amongst the commonest phenomena of civilised, or perhaps I may be permitted to say of *well-dressed* life. Now, ecchymosed stains and the discolorations of bruises disappear very quickly by the use of the thermæ, and the skin acquires so much and so healthy a firmness that they soon cease to be produced by trivial causes. In the thermæ the skin acquires colour, freshness, firmness, and elasticity; it loses the muddy and faded hues of ill health; and it loses equally the parched and arid dryness and wrinkled aspect of infirmity and age.

We have thus presented to us as the effects of a thermal temperature applied to the skin:—

1. An improvement of organic structure.
2. An improvement of secreting function.
3. An improvement in circulation and respiratory power.
4. An improvement of innervation and sensation.

Now these are extraordinary and unexpected physiological results; but results that admit of no doubt or question, and

they serve to clear the way to the consideration of a still more important series of phenomena, namely, such as belong to the treatment and removal of disease.

Looking at the skin in relation to the other organs of the animal economy, we recognise it as one of the great emunctories or scavengers of the body; and we may fairly place it by the side of those other great emunctory organs, the liver, and the kidneys, and probably, the lungs. But taking it in conjunction with the liver and kidneys, and regarding it as one of the three great scavengers of the animal system, we have the following considerations brought before us for reflection. In the climate of Britain, the skin, in many persons, is not brought into exercise for six months of the year; in many, not for nine months; in many, as in women and persons of sedentary habits, scarcely once in twelve months.

Now, this being the case, an increased amount of duty is thrown on the liver and kidneys. These latter organs are called upon to perform their own office as well as that of the skin; and for a number of years they succeed more or less well. But after a time, say about the mid period of life, the over-worked organs begin to show signs of failure; we hear complaints of the liver or of the kidneys; the liver becomes enlarged; fat accumulates in the abdominal region; hæmorrhoids are developed with congestion of the pelvic organs and symptoms of plethora abdominalis are established. After the abdominal emunctory organs, come the heart, the lungs, the brain, and the organs of sense, sight, and hearing. So that, originating from a mere deficiency of function of one organ in the first instance, a whole series of disorders are engendered, which involve in succession the most important organs of the body.

It is an axiom in medicine that the first step towards the cure of a disease, is the removal of its *cause*; and if this doctrine be applied in the case that I have just stated, we have only to restore the skin to its healthy tone and function, to bring back to their allegiance the organs whose function has become disordered by its impairment. The thermal treatment, by unlocking the pores of the skin, gives to the liver and kidneys the opportunity of recovering their tone and resuming their healthy function; and the whole of the emunctories, acting in harmony, gradually lead the way to the restoration of the entire system to health.

But suppose the mischief to have gone further; and that the disorder of function of the emunctory organs has left behind in the blood a considerable quantity of irritant matter, the product of indigestion and malassimilation. These morbid materials are moved hither and thither with the tide of the circulation, they communicate a sadness to the blood and with the blood to the entire organism; they discolour the skin; they give pains and aches to the nerves; heaviness and distemper to the brain; and they rack the joints with gout and rheumatism. Here is a catalogue of diseases all taking their rise in malassimilation, all dependant on the presence of impurity in the blood. How, then, are they to be removed? We resort to the emunctories,—the liver, the kidneys, the skin. For the liver and kidneys we prescribe the accustomed remedies; but for the skin directly and the liver and kidneys indirectly; what remedy is there so simple and yet so powerful as the thermæ?

It must not be supposed that I advocate the thermæ as capable of superseding other remedies. My present aim is directed to the illustration of the uses of the thermæ, and therefore I recur to it frequently. I would employ the thermæ, not always as a primary means, but often as an adjuvant, more than respectable both in character and power. An increased action of the skin empties from the system a large quantity of water, with the water there pass away saline and effete substances in a state of solution, a fresh addition of water drunk during the perspiratory process also comes away rapidly, until the blood may be said to be washed clean of every impurity; poisons that have crept unbidden into the blood are drained out as also are the broken and dissolved particles of organic transformations of a morbid type. This operation renders the absorbing powers of the system more than usually active; accumulations of fat are removed; nutritive matters are taken up and medicines find their way more quickly and more abundantly into the blood, and therefore act with greater energy. Herein we have the explanation of an apparent paradox. We reduce fat by the thermæ, because fat is an excess, a redundancy, and a result of defective emunctory power. We fatten and bring into condition those that are lean by the same means, because we render nutrition more active and facilitate the absorption of nutrient material from the digestive system.

During my short experience of the thermæ, I have seen the infant and the aged subjected to its influence, the strong and the infirm, the healthy and the diseased. I have been struck by observing the ease with which the young, and the old especially, glide into its use. If any difficulty arise, it occurs more constantly among the middle-aged than at either extreme of life; and more frequently among women than among men. There are reasons for these peculiarities which those accustomed to the thermæ will immediately recognise.

Among my fellow subjects of the thermæ, I have seen numerous examples of relief from painful affections dependant on morbid composition of the blood. Several were cured of gout, of rheumatism, of neuralgia. A clergyman and Doctor of Divinity who resorted to the thermæ to reduce redundancy of adipose accumulation suffered habitually during the winter season from catarrh, bronchitis, and neuralgia, and was often laid up for weeks together with these affections. Since he has adopted the use of the thermæ, which he enjoys excessively, he has diminished in bulk; he has lost all proneness to catarrh, and bronchitis, and no longer experiences the pangs of neuralgia. Recently I was much interested in seeing a case of eczema of the face treated throughout by the thermal process alone; the patient lived in the thermæ for several days, he used very high temperatures and he succeeded completely in curing his disease. It was curious, he remarked, to observe the patches of eruption; they yielded no perspiration and looked like so many parched up islets in the midst of the surrounding copiously-perspiring skin. At about the same time, a medical friend consulted me for prurigo senilis. "You know Mr. Witt; go and ask him to admit you to his thermæ," was my counsel. The next time I paid a visit to my friend's thermæ, there was my elderly patient, luxuriating in the fulness of enjoyment. That day he left his prurigo senilis behind him in the calidarium, and I believe has had no reminder of it since. He went back to his home on the coast, and now offers a seat in his own thermæ to his curious or suffering friends.

How often since my first acquaintance with the thermæ have I longed to prescribe it to those who have been suffering from some forms of cutaneous disease. How important it will prove in a large group of diseases which have their origin in defective vitality and defective nutrition of the skin; prurigo among these; acne and its allies of torpid function; chloasma and its associated discolorations. I have now under treatment two cases of the ancient leprosy, elephantiasis græcorum, that have been much benefited by the thermæ. Mr. Urquhart has met with a case of chronic psoriasis which was cured by the thermal treatment alone.

I have hinted at the curative effects of very high temperatures; and both Mr. Urquhart and Mr. Rolland have mentioned to me important results from this process. It occurred to Mr. Urquhart's mind that as *fever-heat* was represented by 112°, he should be able, could he create a temperature higher than fever-heat, to supersede the stage of fever at once. Thus, taking the beginning of the cold stage, which nature seemed to struggle painfully to overcome; he was enabled by a high thermal temperature to cut it short at once and to pass over it and the hot stage to that which nature seemed desirous of reaching, namely the sweating stage. He believes that at a certain temperature he can put a stop to the fermentative process of zymotic diseases; and, at a higher temperature still, destroy animal poisons. He suggests, moreover, a curious and important inquiry, namely, the influence on the chemical composition of the blood, circulating through the capillary plexuses of the skin, of hot air having a temperature of 160° of Fahrenheit. Not so much its influence on the healthy blood as on the blood of persons in a state of disease.

A member of Mr. Urquhart's family, a child, was accidentally burnt; the burn was distressingly painful; various applications had been made without relief; the child was accustomed to the thermæ and desired to go into it; it was carried into the thermal chamber and the pain of the burn was immediately assuaged. Mr. Urquhart, himself, received a severe scald, he betook himself to the thermæ; there, in a heated atmosphere, he directed upon the injured part a blast of air hotter than the temperature of the apartment; the pain became lessened, the process of effusion which results in the production of a blister was arrested; to use a popular expression "the heat had drawn out the heat."

In an earlier page I have said that the active function of the skin, by removing all excess of fluids from the blood, by inciting in the blood a desire for fresh fluids, becomes an important agent of nutrition. Let us suppose that the fluids which are removed by the process of perspiration, contain in solution the old and worn out material of the body; while the fluids with which we supply their place are highly nutritious; it is clear that we

shall nourish the blood, and through the blood we shall nourish the body. I am here supposing a simple physiological process, which although unseen, is in constant operation in the animal organism. The necessity for nutrition is proportioned to the loss of material; the waste creates the necessity for supply.

In the retort house of our gas factories, where perspiration is excessive and is continued through the entire day, the men are allowed a certain quantity of oatmeal which is made into thin gruel, and drank largely as often as the waste of fluids occasions thirst. The men are the gainers by the exchange, they give out waste water and used up solids, and they receive in exchange fresh water and nutritious solids. It is needless to say that by this process they get into high condition both of structure and health.

If we have a weakly and ill-nourished child, or a thin and emaciated adult, in whom there is no organic disease, but simply a powerless condition of the nutritive functions, may we not hope by means of the thermæ to bring about a more active and healthy nutrition and thereby change that which is weak into strength; that which was skin and bone, into flesh and blood and their usual concomitants.

The same argument applies to disease in all its protean forms; we must apply ourselves to the hope of improving nutrition, of draining away that which is bad, and supplying its place with that which is good. It is here that our pharmacopeia will afford us important auxiliaries, and those auxiliaries will be placed on the best footing for developing their most useful properties. Viewing the operation of the thermæ in this way, we are imperceptibly led to the conclusion that every morbid process, of whatever kind, must be relieved by its use, and we ask ourselves, not, what disease will be benefited by the thermæ? but, what disease can resist its power?

Looking at the thermæ in a social and political point of view, we find that it is wonderfully adapted for the preservation in health of large bodies of men, combining in itself the respective advantages of air, exercise, and ablution. The Romans were so impressed with its importance, that they carried with them the genius of their thermæ wherever they migrated, and they put it in operation wherever they were located even for a short period of time. Thus we discover vestiges of the thermæ in all their temporary encampments as well as in their cities; and by its means they kept themselves in health even when hemmed in and surrounded by warlike enemies.

Adopted by our own army, there cannot be a doubt that it would very considerably reduce the rate of sickness and death and add to the efficiency of the men. It is applicable also in all cases where numbers of persons are collected together, as in barracks, prisons, poorhouses, factories, and schools; in large business establishments where a considerable number of young men or young women are assembled; or in places of temporary meeting as the House of Commons and clubs. It must always be borne in mind that the thermæ not only offers advantages as respects physical health, but it also conduces to moral vigour. Those who have recourse to it would be more likely than others to shun vicious excesses of all kinds, particularly of stimulants and be disposed to respond in their hearts and lives to the beautiful sentiment of the poet Thomson:—

> "Even from the body's purity, the mind
> Receives a secret sympathetic aid."

But the usefulness of the thermæ has even a wider sphere; the Londoner, or the inhabitant of a large city, would live as healthily immured within his city walls as the rustic amidst the fields and meadows of the country. His thermæ would be to him in the place of a country house, of a horse, it would give him air, exercise, freshness, health, and life.

I might add very materially to the long list of conditions to which the thermæ might be applied with advantage, but I limit myself to a single one more; it is that of extensive works, employing a large number of men, either in operations in themselves unsalutary, or in unhealthy localities. The importance of preserving a body of working men in a state of health, and in the best condition for the performance of their duties, must strike every one, and is an object worthy a moderate sacrifice on the part of proprietors or owners. There are many localities in which miasmatic fevers abound, and constantly incapacitate the working force of large operative establishments. I believe that a few pounds expended in thermæ would correct this evil; would put the men into condition to resist the miasmatic force, and to eject the poisonous elements from the blood when they had already found admission into the organism.

In conclusion, I feel that I cannot do better than leave the important questions raised by this communication in the hands of the members of the British Medical Association, from whom, I feel assured, they will receive all the attention and practical consideration which they deserve.

Original Communications.

SCROFULOUS DISEASES OF THE EXTERNAL LYMPHATIC GLANDS:

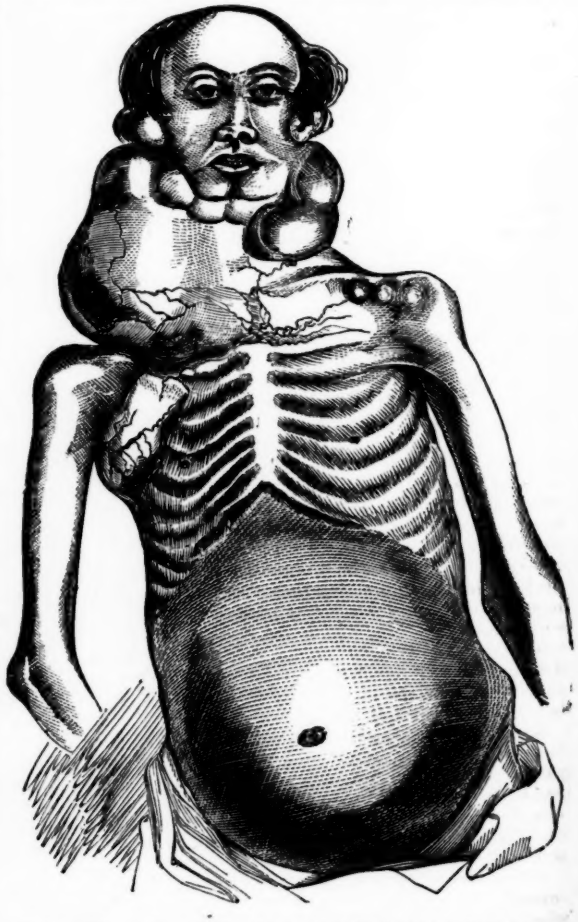
THEIR NATURE, VARIETY, AND TREATMENT.

By P. C. Price, Esq., Surgeon to the Great Northern Hospital; the Metropolitan Infirmary for Scrofulous Children at Margate; etc.

III.—Tuberculous Disease of the External Lymphatic Glands.

[*Continued from page 757.*]

The extent to which the externally situated lymphatic glands may become diseased, as was lately described, is well seen in the accompanying woodcut, which represents a patient, a lad, who was sometime ago in King's College Hospital, under the care of Mr. Partridge. The extreme emaciation and rapid enlargement of the superficial absorbent ganglia, including those of the abdomen, was more marked than in any other patient I have met with, and soon led to a fatal termination.



Recognition. Lymphatic glands involved with tubercle may, at an early period, oftentimes be readily mistaken for the more benign kinds of enlargement already described. As a rule, some increase in size takes place in an absorbent gland prior to the positive deposition of tuberculous matter; and hence it is that very great uncertainty is apt to exist so long as the glandular tumour remains entire. It has been too much the custom among many practitioners, to term every enlarged gland in individuals presenting a peculiar condition of constitution,

tuberculous or scrofulous. Both these terms have thus frequently, and with but little consideration, been used synonymously. A very slight acquaintance, however, with the true pathological changes that ensue in really tuberculous glands, and in those which are not affected with tubercle, though occurring in highly scrofulous subjects, will serve to show that the expressions tuberculous and scrofulous are not, strictly speaking, convertible terms. The term scrofulous may be applied to disease of a gland in which tubercle plays the chief part, but the word tuberculous cannot with the same propriety be used to denote the nature and characters of every so-called scrofulous gland which, although appearing in what is termed a tuberculous subject, is in no way dependent for its morbid alteration on true tuberculous deposition. It is exceedingly difficult clearly to define the use and correct meaning of expressions which have inadvertently, though unfortunately, crept into general requisition; but the judicious practitioner will at once see that a broad practical distinction is often necessary and very advantageous.

There is no manipulative distinction, so far as I am aware, whereby the earlier stages of tuberculous mischief may be distinguished from other forms of glandular enlargement. It has already been shown that glands implicated with tubercle either slowly or rapidly pass through various destructive changes, and that such alterations are accompanied with symptoms more or less dissimilar to those in which tuberculous invasion plays no part. When softening and suppuration obtain, and certain indications are manifested, which are usually associated with tuberculous diseases, then the doubt which remains is greatly diminished, and little, if any further difficulty prevents the correct recognition of the nature of the affection. Added to the local mischief, a more or less general constitutional disturbance exists, which oftentimes enables the surgeon at once to distinguish the true nature of the enlargement.

Although tuberculous glands in an incipient state are apt to be confounded with simple hypertrophies and *engorgements*, still there are certain other morbid conditions for which they may be mistaken. Cystic tumours, especially about the lower jaw; medullary affections of the absorbent glands; fatty and fibrous tumours, and chronic abscesses, are among the abnormal formations which occasionally embarrass the surgeon in the ready recognition of tuberculous glands. I have frequently known cysts containing atheromatous, steatomatous, and other secretions, mistaken for tuberculous glands; and so close is the similarity exhibited, both by fibrous and other tumours, that great care is sometimes needful in forming a correct diagnosis. Chronic abscesses situated in the region of the neck not uncommonly assume appearances nearly identical with those exhibited by absorbent glands in an occult stage of tuberculous disease. I have known even the most intelligent surgeons proceed to the removal of tumours supposed to be glandular, but which on the first application of the knife have proved to be of a totally different character. Not uncommonly, the only glands which are found tuberculous are those situated in close relation to the under and front surface of the lower jaw; and within the past few days, I have seen a surgeon proceed to the removal of a single tuberculous gland, situated in the centre line of the neck, under the impression that it was a fatty tumour. Such a mistake may, however, oftentimes be avoided by noticing whether neighbouring glands are similarly affected, or whether unmistakable mischief of pre-existing disease—as old scars and deformities—can be detected. A very marked similarity is sometimes seen to exist between tuberculous and medullary mischief in absorbent glands.

Some years ago, in Mr. Partridge's wards in King's College Hospital, I saw a scrofulous but otherwise healthy, though pale-looking man, with a cluster of enlarged cervical glands greatly resembling tuberculous enlargements. The diagnosis was, however, uncertain, and continued so for some time, but eventually unequivocal symptoms of malignancy announced the terrible nature of the complaint.

A few days since, I was requested when at Margate to see, in consultation with my brother Dr. W. Price, an elderly female, who had a tumour of about the size of a walnut, situated over the sternal portion of the clavicle. Ulceration had commenced, and had softened the growth. It presented very closely the aspect of malignancy; but on examining her neck, I discovered various scars which marked the previous existence of tuberculous mischief in many of the absorbent glands.

In arriving at any diagnostic distinction in instances in which dubious grounds exist, it will be advisable always to recollect that there are generally certain peculiarities which particularly distinguish tuberculous invasion of lymphatic glands from all other conditions; and, although they may not be constantly present and prominent, still they are frequently so.

I allude particularly to the special diatheses in which glandular tuberculosis is apt to manifest itself, the sympathy of other and still more important organs, and to the wholesale way in which, if I may be allowed the expression, the diseased action invades the glandular arrangement of particular regions. And this brings me to make a few observations on a point which has not, as yet, in these pages, obtained any special consideration.

With the older authors, the maladies of syphilis and scrofula were supposed to bear a very near relationship, the latter disease being considered but a modified condition of the former. Indeed, they were often looked upon as one and the same affection, and like remedies were used for their treatment. The erroneous conclusions of those who held this doctrine have been fully exposed by modern research and experience; and, although hereditary or acquired syphilis may exert a more or less direct influence on the acquisition, or at least on the development, of scrofula, still it is now generally admitted that a very imperfect resemblance exists between them. The similitude which obtains between lymphatic glands affected by these two diseases is, however, the only point of immediate importance to the subject under consideration. I have myself never met with an instance of truly tuberculous lymphatic glandular disease which has, in any decided manner, resembled syphilitic enlargement; although the venereal poison may occasion such disturbance in one or more parts of the absorbent system as to give rise to doubt as to the exact nature of the mischief.

When considering the treatment of tuberculous glands, it will be mentioned how necessary it is sometimes to inquire if any marked syphilitic symptoms complicate those of scrofula, so that they both may be combated with advantage.

[*To be continued.*]

TEN YEARS OF OPERATIVE SURGERY IN THE PROVINCES.

By Augustin Prichard, Esq., Surgeon, Clifton, Bristol.

I.—Operations on the Face, Tongue, Palate, Neck, and Chest.

[*Continued from p.* 776.]

Cancer of the Lip. The number of cases of cancer of lip was nine. In all, the V-shaped incision, more or less modified according to particular circumstances, was made with a scalpel, and the German-silver pins were used. A very short account of each is all that will be requisite.

Case xii. G. J., aged 26, a weak subject, much accustomed to smoke, had a large ulcerating projection on the lower lip near the left angle of the mouth for six months before his admission; and it was at that time becoming fetid. The disease was removed freely in the usual way. On the fourth day I removed the lower of the two pins, and on the fifth day the upper one. The small separate point of suture which I had inserted in the red part of the lip sloughed out and was lost. The wound was healed, and he went out on the sixth day after the operation, with an excellent lip, but with some swelling of the glands of the neck on the same side as the disease of the lip, and this had existed on his admission. I never saw him again.

Case xiii. S. B., aged 56, admitted with cancerous tumour of the lower lip, of eight months standing. It was distinct from the healthy part of the lip, and in an ulcerated state.

I removed the disease, and inserted three pins. On the third day I removed two lower pins, and on the fifth the upper, the string of which had caused some slight sore on the lip from pressure. The wound had healed entirely, and he went out in a few days.

Case xiv. C. D., aged 64, apparently healthy, had suffered from cancer of the lip for some years before I saw him, and the disease had attained a considerable size, that is, from one angle of the mouth to the other there was a space of three inches and a half, and the width of the tumour alone was two inches and a half.

After removing the diseased portion, I was obliged to separate the lip freely from the jaw by cutting through the mucous membrane on each side where it passes from the lip

to the bone, otherwise the great gap could not be brought together. It was, however, done satisfactorily by means of three pins and a silken suture through the red part of the lip. The whole was supported by adhesion and bandage, for although it fitted remarkably well, it was very tense.

On the third day I removed the lowest pin and the silk; on the fourth, the middle pin; and on the fifth day the upper one. In this case also the thread cut a little into the lip, but the union was complete. He went home after about a fortnight quite well.

Case xv. F. B., aged 54. The tumour was as large as a "cob" nut, and had been growing for two months. I removed it in the usual way, and he went out cured in a few days.

Case xvi. W. P., aged about 50, had suffered from cancer of the lip for some years, but he had an enlargement of the sublingual glands previous to the disease in the lip. The ulceration was on the right side, and extended beyond the angle of the mouth and half-way along the lip. I removed the disease by cutting out a triangular portion, with the apex below, and inclining inwards towards the median line, making the outer cut a little curved, so that when the parts were brought into proper position, the two lines of incision were exactly of the same length. Three pins, and two points of ordinary suture, were used to keep the parts together. He lost a good deal of blood, and was very faint.

On the fourth day I took out all the pins but one, and on the fifth day the last one, and the union was perfect. He was dismissed cured on the eighth day after the operation.

Case xvii. R. S. had suffered from cancer of the lip, occupying the middle third of it, for many months. After repeated trials by caustic, I removed the disease, the base of the V-shaped portion being an inch long, and brought it together by four pins. On the third day I removed two, and on the fourth the remaining two pins, and found it soundly healed. When he went out a few days afterwards, there was a very slight superficial sore upon the lip at the top of the wound.

This patient has returned with swelling and threatening suppuration underneath the chin, the scar made by the operation remaining perfectly sound.

Case xviii. P. C., aged 56, had the disease six months before he underwent an operation. The disease was situated at the left angle of the mouth, and occupied nearly half the lower lip. I operated by the oblique incision (as in Case xvi), and after separating the lip from the jaw, brought the parts in place by three pins and adhesive plaster.

On the second day I removed the middle pin, on the third day the lower, and on the fourth day the upper one, and found all perfectly healed. He went out cured on the sixth day.

The two remaining cases were not so satisfactory in their results.

Case xix. D. L., aged about 65, was admitted with a thickened and excavated ulcer of the lower lip, extending beyond the right angle of the mouth to the upper lip, and occupying the greater part of the lower lip. In this case I operated, and removed a slice along the lower lip below the diseased portion, continuing the incision into the cheek obliquely downwards and backwards; a similar cut on the upper lip joined the first at an angle, and thus the whole of the cancerous part was removed. I brought the edges tolerably well together with ordinary sutures.

The greater part healed well; but after the removal of the sutures, it was found that a portion was not united, and he was unable to retain the saliva in his mouth. He went home relieved but not cured.

Case xx. A. B., aged 60, had suffered from a disease of the lip for nine weeks. It had grown very rapidly and was much ulcerated, and occupied the middle three-fourths of the lip. I removed the greater part of the lip, forming a broad triangle, reaching by its apex down to the bottom of the chin. It was necessary to separate the soft parts from the bone for some distance on either side, and to use three pins and two ordinary sutures to keep the parts in complete contact. There was free bleeding. On the second day I removed the upper small suture, on the third the lower suture and two pins, and on the fourth the last pin; and a little pus oozed out on the removal of the pins. The union by the first intention was perfect; but in rather less than a month, a hard tubercle returned in the scar, and the disease rapidly reappeared, the patient declining to submit to any further operation.

Remarks. Epithelial cancer, wherever it occurs, is admitted to be the form in which this dreadful disease is curable if it ever is so; and I believe that of all the modes of cure the knife is by far preferable. One of the patients, upon whose lip caustics had once or twice been applied in vain, immediately after I had cut out the diseased portion and finished the operation, volunteered the remark that the pain of the knife and pins did not equal one application of the caustic.

In the case (No. xx) where the disease returned within the month, the carcinomatous growth had been unusually rapid in its previous development, having invaded three-fourths of the lip in nine weeks, yet I have always feared that although I cut away nearly all the poor fellow's lip, some seeds of the disease must have remained behind. It is very seldom that I have seen the recurrence of the disorder in the same part. A patient was admitted under one of my colleagues not long ago, suffering from extensive unhealthy ulceration and induration in the submaxillary region with threatened sloughing of the gland, and its nature was not easily determined at first, until casually a scar was seen on the lip and chin, and upon questioning him, it appeared that many years before (ten or twelve, according to the best of my recollection) a cancer of the lip had been removed, and the complaint had remained dormant in his system all that time.

I have also under treatment at the present time an old man, who has had an indurated and ulcerated surface near the inner canthus of the left eye, which is gradually yielding to the nitrate of mercury ointment and an occasional touch of the nitrate of silver. Seven years ago, he underwent a successful operation for the cure of a cancer of the lip on the same side, but the epithelial disease of the cheek has existed twenty years.

These cases afford an excellent illustration of the efficiency of the German-silver pins of large size; for they are very sharp and round, they produce no irritation, and are removed by a rotatory motion without any pain, leaving the threads *in situ*, as an additional protection; and, as will be seen by anyone who may take the trouble of reading the following cases, I always use them, wherever they are admissible, even in amputations.

Cancer of the Tongue. Case xxi. M. D., aged 50, had a tumour on the left side of the tongue for nine months; it was round and hard, with definite edges, feeling like an extraneous substance in the tissue of the organ. After trying the effect of mercury upon it, without avail, I excised it, by laying hold of it with a double-hooked forceps (*vulsellum*), and passing a bistoury through the tongue, and removing it in a triangular portion by two cuts. Two vessels bled freely, but stopped spontaneously, and the wound was brought together by three sutures, which were removed on the third day, when the wound was found to be healed. The microscopic examination of the disease showed epithelium, cancer cells, blood corpuscles and muscular fibre, with numerous regular round cells, with granular contents and larger than blood corpuscles (probably developed and escaped nuclei of the cancer cells).

I never saw this patient after he left the Infirmary.

Case xxii. R. J., aged 59, was admitted with a hard tumour of the tongue, ulcerated, and with prominent edges, which had existed for some months.

I passed a large curved needle through the tongue, and tied a string tightly in front and behind the tumour. He suffered excessive pain. About the seventh day, under the use of a chlorinated lotion, the dead part separated and healed readily, so that he was reported "cured" when he left the Infirmary a month after the operation. His general health was improved. The "cure", however, was but of short duration. Within two months, he returned with a tumour as before, which I treated as before, tying it with strong fine whipcord, and notching the tongue in front and behind to ensure perfect strangulation and isolation of the tumour. It separated and partially healed up, and he left with a very suspicious ulcerated place in the tongue.

After this, I heard that the disease returned rapidly, and that he died the death of bodily suffering which is the lot of patients suffering from this frightful malady.

Case xxiii. J. F., aged 37, was under my care at first for about five weeks, when I tried the effect of mercury, iodine, chlorate of potash, caustics (chloride of zinc, etc.), cod-liver oil, and all kinds of remedies, but in vain. He was suffering from a hard and thickened and ulcerating sore, extending from near the tip of the tongue about an inch and a half backwards. This I cut away deeply and freely, and the bleeding was considerable, requiring two ligatures. I then lessened the size of the gap as much as I could by means of two sutures, which came out in the course of a few days, and he went out with the wound entirely healed. This man was convinced throughout that he had a malignant disease, although the appearance was

not so characteristic as it sometimes is, and at first I had doubts upon the subject. In a short time the disease returned, and grew rapidly, and proved fatal.

Remarks. Of these three cases, the disease returned very quickly in two that were in an ulcerated state when the operation was performed; the other was, at any rate for the time, and it may be, altogether, cured. It is obvious that the earlier an operation is performed, the better. Besides these three instances of cancer of the tongue, I had a patient, aged nearly 70, who had a deep excavated sore, with hard edges and excessively fetid discharge, far back on the dorsum of the tongue. As operation was out of the question, I treated him by drawing the stumps of some teeth that appeared to irritate the sides of the sore, by tonics, stimulants, cod-liver oil, and the application of a twenty and afterwards thirty grain solution of the nitrate of silver freely to the surface. The hardness disappeared, and the wound healed. He went home, and remained well for a month or two, when the disease returned, and was treated again in the same way, with a like result. Some time afterwards, I heard that it had recurred a third time, and was likely to prove fatal; a result which has doubtless taken place long ago.

Staphyloraphy. The cases of this operation which I have to narrate would appear, in a strictly scientific classification, among the operations for the removal of congenital deformities, but being few in number, it is as well to introduce them here.

Case xxiv. E. G., aged 24, had a scar on his lip, the remains of an old operation for hare-lip, and he had a fissure extending from just behind the alveolar process backwards through the uvula.

After he had taken, for the support of his system and the upholding of his courage, a profuse meal of beefsteak and beer, I operated by paring the edges, and bringing the soft palate together by two silken sutures. There was very little tension, and the union was complete as far as the sides were in contact, and even afterwards the granulations still further lessened the aperture that remained. The stitches were taken out on the fourth day.

Case xxv. J. S., aged 26, with an awkward nostril, and a scar from a hare-lip operation, had apparently been a case of double hare-lip with prominent bone, requiring removal, and was operated on by a former surgeon to the Bristol Royal Infirmary, in the patient's earliest months. A fissure of the palate extended from the alveolar processes backwards.

I removed the edges of the fissure, and brought a considerable length of it into contact by means of four stitches: the tension not having been very great. On the third day I removed the lowest stitch which was really in the uvula, on the fourth the two next, and on the fifth the last. The parts had healed satisfactorily.

Case xxvi. E. G., aged 21, with cleft palate, but no trace of hare-lip. I pared the edges in the usual way (that is, by holding each extremity of the uvula in turn by a forceps, whilst I stripped off the edges of the fissure with one of the straight little knives generally kept in the case of tenotomy instruments), and introduced two sutures by means of a common small curved needle held in a pair of forceps. The parts came well together, and she was very steady. The next day the throat became extremely inflamed, but the parts were well in apposition. On the third, the throat looked sloughy and was fœtid, and I removed a stitch. On the fifth day I removed the other stitch, and found that the sides of the fissure held together but loosely, and an aperture appeared on the anterior part. The adherent portion grew narrower, so that on the eighth day I was in great uncertainty as to whether it would all break open or not. I had given her a little wine, and brushed the parts with a solution of nitrate of silver, and the wound healed; granulations sprang up, and the opening anteriorly lessened. I afterwards touched it with the galvanic cautery, and it became about the size of a shot. Some time afterwards, I touched the aperture very lightly with a piece of caustic potash, hoping to make it granulate and close, but this increased its size. I then pared the edges of this round hole and brought them together, to no purpose, for it broke open again, and now she has an aperture, of the size of a split pea, about half way between the alveolar processes and the uvula.

Case xxvii. A. H., aged 41, cleft palate and hare-lip scar. The fissure extended about half way through the hard palate.

The operation was as usual, and four sutures were introduced, the anterior one being very tense, and therefore I scored the palate with two cuts through the mucous membrane, parallel to the middle line. The mucous membrane forming the posterior pillar of the fauces was also excessively tense. The case failed completely, and in three or four days split open throughout.

This patient was very courageous and anxious to be cured, and therefore in six months time I operated again in the same way, with the addition of dividing tolerably freely the posterior pillar of the fauces; the result was the same; on the fourth day it had all burst open.

These two operations were performed before the metallic sutures came into general use, and it is not impossible that they would have succeeded.

Remarks. My experience of this operation, extending only over these cases, and one or two others that have been under the care of one of my colleagues, does not entitle me to say much on the subject; at the same time, considering the appearance which these throats have presented, when sewn up and when healed, considering also the loose way in which the fibres of the palato-pharyngeus are held together between the folds of membrane, and the fact that one or two fibres of a small muscle (as seen in the operation for strabismus) will produce a very distinct and marked effect, I do not believe in the division of the palato-pharyngei as a necessary step in this operation. My success was three out of four; and in the fourth, it obviously was not muscular contraction, but absolute want of sufficient mucous membrane to fill the gap that caused the failure.

Epulis. Case xxviii. M. P., aged 17, admitted with a small firm growth on the gum opposite and against the right lateral incision of the lower jaw. Caustics had been applied, and partial removal had been performed.

I removed it by incision, and afterwards cut a notch out of the alveolar process with the bone nippers. She went out cured in four days.

Nasal Polypus. Case xxix. A. B., aged 12, with polypus of the right nostril of a month's standing, not quite closing the cavity. I removed it entire with the forceps, with scarcely any hæmorrhage, and she was cured.

Case xxx. A. S., aged 57, had not breathed through his left nostril for ten years. The polypus was visible in front and at the back of the pharynx. I removed it piecemeal with the forceps, until he could breathe freely on this side. The hæmorrhage was considerable, but ceased on the application of cold.

Case xxxi. C. D., aged 30, had polypus in each nostril for many years; the right being almost obstructed, the left completely so. At the first sitting I removed the growth from the left side, and a small entire polypus from the right, but as it was not quite free the next day, I operated again and freed it completely.

Case xxxii. A. H., aged 50, with polypus of each nostril. It was removed from the left, leaving the cavity free, and he was so satisfied, that he declined any further proceeding. He has remained cured.

Remarks. This operation, which is rather rough in its nature, and disagreeable to the patient, surgeon, and lookers on, requires a certain amount of dexterity, and there is as much difference perceptible in the skilful or unskilful performance of it, as in other more important proceedings. A forceps, rough in its blades, and meeting at the points but not elsewhere, is the instrument, which must be used lightly and very freely, with due remembrance of the surfaces along which it may safely glide. After the removal of a polypus or a portion of it, I have never had any difficulty in introducing my little finger completely into the nostril to feel for the root of the growth.

Many of my cases were among the out-patients, and escaped the record from which these were taken. The second (xxx) was one of those growths extending into the pharynx, where the ligature is practicable and admissible. It was in cases such as this that I have seen Professor Dieffenbach, when I attended his surgical clinique at Berlin in 1841, slit up the lip and nostril close to the median line, turn back the side of the nose, lip and cheek, and with a pair of sharp curved scissors snip away the growth from its base, and after removing it entire, bring the parts together with pins so thoroughly, that in a few days it was difficult to see the line of section. This mode of operating has, some years ago, been brought forward as a novelty in London. I believe the cases to be extremely rare in which such a dissection would be justifiable.

The microscopic examination of these growths shows epithelium of varied form.

[*To be continued.*]

ON CERTAIN CHANGES IN THE FORM OF THE RED CORPUSCLES OF THE BLOOD, PRODUCED BY CERTAIN FLUIDS.

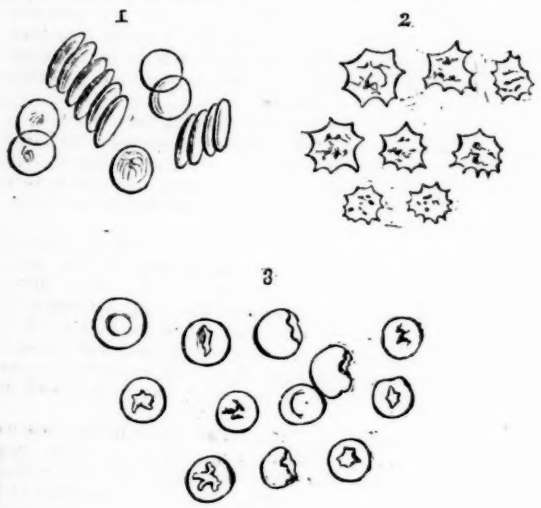
By William Addison, M.D., F.R.S., Fellow of the Royal College of Physicians, London.

It is well known, when freshly drawn blood is examined in the usual way with a microscope, that the fluid—liquor sanguinis—is seen transparent or clear, the red corpuscles adhering together in rolls. The outline of the corpuscles is smooth or even, and no marks are visible on their surface or in their interior.

There are, however, frequently to be seen, as exceptions, a variable number of corpuscles floating separately in the fluid, which exhibit an uneven, a spotted, or perhaps a prickly looking outline. The capsules of these corpuscles appear beset with sharp points, or the outline of them is rumpled and uneven, and they have lost their tendency to adhere together. These altered forms have been described by Hewson, Gulliver, and other observers. They are usually seen at the outer edges of the film of blood under examination.

The two forms of the red corpuscles of the blood here described are shown in the figure below. They are to be seen without adding anything to the blood.

Experiment I. With the point of a lancet, mix together a very small drop of blood and an equal amount of a weak solution of common salt (two grains of the salt to half a fluidounce of water); or mix a drop of blood with an equal quantity of very dilute solution of potash or soda. Upon an examination with the microscope, the whole or a great majority of the corpuscles will be found to have assumed the forms 2. Now add at one of the edges of the thin covering glass a drop of the



diluted hydrochloric acid (*Ph. Lond.*); and forms 2—*i. e.*, the prickly or rumpled forms—will be seen changing into forms 3.

The capsules of the uneven corpuscles (2) may be seen gradually to lose their rough or prickly appearance; they become again smooth; and a bright matter of various forms shows itself, nucleus-like, in their interior (forms 3).

The order of this experiment may be reversed thus. Mix a drop of very diluted hydrochloric acid (one drop of hydrochloric acid to twenty drops of water) with a drop of blood, whereupon the majority of the corpuscles will be found to have assumed forms 3. Now add at one of the edges of the covering thin glass a drop of liquor potassæ, and forms 3 may be seen gradually to change into forms 2.

Experiment II. Dissolve twelve grains of refined sugar in a fluidounce of water. Make a fluiddrachm of this solution *alkaline* to the ordinary test-paper with solution of potash; and make another drachm of the sugar-solution *acid* to litmus-paper with hydrochloric acid. With the alkaline solution produce forms 2, as in the first experiment; and then add at an edge of the covering glass a small drop of the acid solution, and forms 2 will be seen changing into forms 3. Reverse the order of the application of the alkaline and acid solutions, and forms 3 will be seen changing into forms 2. Lemon or orange juice may be substituted for the diluted mineral acid.

In this experiment, the solution of common salt before spoken of may be used instead of the sugar solution; an *alkaline saline solution* producing forms 2, and an *acid saline solution* producing forms 3. Forms 3 may be changed into forms 2 by adding to the edge of the covering glass a drop of liquor potassæ; or, reversing the order of the experiment, forms 2 may be changed into forms 3 by adding at an edge of the covering glass the diluted hydrochloric acid of the *Pharmacopœia*.

Now, it is to be observed, in making these experiments, that the corpuscles, in undergoing the changes from forms 2 to forms 3, or from forms 3 to forms 2, resume for a period their normal form 1; that is to say, the corpuscles, in the process of their change from one abnormal form to the other, resume their usual or natural figure and appearance, without any unevenness of the capsule, and without any bright or other spots in their interior.

Moreover, during the transition, they also regain their tendency to adhere together in rolls or masses, and individual corpuscles may be seen elongated very much before their renewed tendency to adhere together is overcome.

When a liquid is added to the edge of the thin covering glass, as in these experiments, it diffuses itself irregularly between the contiguous surfaces of the upper and lower glasses; and the observer will have to find the place or places in which the phenomena described are taking place.

Numerous little currents are usually the result of the added fluid; and it is extremely interesting to observe a stream of corpuscles of the forms 2 enter a channel scarcely wide enough to admit two of them abreast, and to see them all issue at the other end of the channel with the forms 3.

We can then, by an appropriate application of alkaline and acid fluids, impress particular forms upon the red corpuscles of human blood. We may see them gradually change from one form to another, and observe during the transition that the corpuscles regain, for a longer or shorter period (dependent upon the strength of the reactions), their normal figure and adhesive properties—properties which are in abeyance whilst they retain either the form 2 or the form 3.

With respect to the emission of moving tails or filaments, or molecular matter, from the red corpuscles when under the influence of sherry wine (described in *Proceedings of the Royal Society*, vol. x, No. 37; and British Medical Journal, June 11th, 1859), I find that an acid reaction in the vinous fluid is an essential ingredient towards producing this remarkable phenomenon. The corpuscles from which the tails issue are much more nearly allied to forms 3 than to forms 2. Moreover, upon testing the several vinous liquids with which I have succeeded in producing the tailed forms, I find they have all of them an acid reaction upon litmus-paper.

[*To be continued.*]

Norfolk Square, Brighton, October 1860.

Sale of Poisons in France. A medical student, named Delorme, and a retired apothecary, named Boucaumont, have been tried before the French Tribunal of Commerce on the charge of homicide by imprudence. The following were the circumstances of the case:—A young girl, eighteen years of age, went astray, but after awhile was seized with remorse, and determined to commit suicide. A friend remonstrated, and, as he thought, succeeded in persuading her to abandon the intention. A few days afterwards she called on Delorme, and in the course of conversation took up a phial containing an arsenical compound. "Do not touch that," he said, "it is poison." "I am not afraid of poison," she replied; and from what afterwards transpired, she appears to have secreted the phial, and went away. Two days later she committed suicide by means of this poison. The phial having been traced to Delorme, he was arrested and tried for his imprudence in allowing the girl to obtain the poison, and Boucaumont for supplying the poison, contrary to the regulations in force. The defence of the former was, that he did not know that the girl had taken the phial, and of the latter, that it was supplied with the understanding that it was required for experiments. The tribunal condemned each to three month's imprisonment, with the addition of a fine of 50f. in the case of the apothecary.

Transactions of Branches.

SOUTH-MIDLAND BRANCH.

LOBELIA POISONING.

By T. Herbert Barker, M.D.Lond., Bedford.

[*Read at Leighton Buzzard, October 9th*, 1859.]

On November 4th, 1858, I was requested by E. Eagles, Esq., coroner for the borough of Bedford, to see a child who had been found dead that morning, and to make an external examination. I found the body of a male child, under two years of age; in good condition; not rigid; the limbs quite flexible. The face and forehead were much scratched and discoloured. The woman who had charge of the child stated that he had been ill and suffering severe pain; that, under the influence of this pain, he had scratched his face and forehead. There was also some slight laceration of the skin about one knee and one elbow. The penis was much discoloured, and the extremity intensely red. The lower part of the abdomen and upper part of the thighs were much discoloured. It appeared that the child had been ill; and that some medicine from a herbalist had been given to him daily for some few days; that the first dose, of two teaspoonfuls, almost "strangled" him; that in consequence, she dare not give two teaspoonfuls, as directed, four times a day; but that she gave it one teaspoonful twice a day, and that each dose produced faintness, and seemed as if it would "strangle" him. The bottle (four-ounce) from which the medicine had been given, contained about two drachms of a dark coloured fluid, which, on application to the tongue, produced a peculiar stinging, pungent sensation, which remained for some length of time afterwards.

These facts were communicated to the coroner, who ordered an internal examination of the body to be made, and the contents of the bottle to be tested. On the following morning, I made an examination, twenty-six hours after the presumed period of death.

Abdomen. On opening the abdomen, I found a small quantity of serum in the peritoneal cavity. The liver was pale, and the gall-bladder much distended with bile. The stomach was contracted and empty; the mucous membrane was much injected, particularly towards the pyloric end; it was also deeply corrugated longitudinally, the furrows in some places being nearly one-eighth of an inch in depth. The duodenum was slightly injected. The lining membrane of the bladder was injected, as also that of the urethra. A small quantity of urine was contained in the bladder. The kidneys, spleen and pancreas, were healthy. The intestines were empty.

Chest. The pericardium contained about six drachms of serum. The right ventricle of the heart was moderately distended with fluid blood; the left ventricle was empty. The lungs were healthy.

Head. A patch of ecchymosis was observed beneath the scalp, on the right side in the posterior parietal region. The membranes of the brain were very vascular, the veins being particularly distended. On cutting into the substance of the brain, the cut surfaces were thickly studded with bloody points. The ventricles contained a considerable quantity of serum. The membranes of the spinal cord and the cord itself were also preternaturally vascular, and much serum was contained in the spinal canal.

On examining the fluid in the bottle, it gave a decidedly acid reaction with litmus paper. It contained a small quantity of sediment; and, on submitting a portion of this to the microscope, it was found to contain great numbers of small seeds, perfectly answering to the description and sketch of the seeds of the lobelia inflata, as given in the more recent editions of Pereira's work on *Materia Medica*. I have mounted two or three of these in Canada balsam for the inspection of the members present, and they may be compared with the recent seed of the lobelia. They will be found to be about the one-thirty-third of an inch in length, and the one-eighty-fifth of an inch in breadth,—brown, oblong, oval or almond shaped,—reticulated with brown fibres, the interspaces being irregular in shape, and of a lighter yellow colour.

The foregoing description was given in evidence before the coroner, and the following very extraordinary verdict was agreed upon by the jury after a protracted discussion, viz., "That the deceased was suffering from disease, and that his death was accelerated by doses of lobelia, injudiciously administered by ——, but without any felonious intent."

The borough magistrates then took up the matter, and issued a summons for the apprehension of the herbalist. At the adjourned examination, a solicitor from London defended him; and his line of defence was based upon the fact that, in the *Report from the Select Committee of the House of Lords on the Sale of Poisons Bill*, lobelia was not included among those poisons the sale of which should be interdicted unless under certain restrictions. He particularly dwelt upon the evidence before this committee of Mr. Crace Calvert. In answer to the question put by the Chairman of the Committee, "Do you consider lobelia to be a poison?" Mr. Calvert answers, "It is very doubtful. I had a case of a woman, near Oldham. This woman was complaining of a violent pain: one of the herbalists went to her, and gave her a dose of lobelia, but it was mixed with too large a quantity of Cayenne pepper, and the poor woman staggered for half an hour, and died. Her stomach was brought to me, and I examined it. So little was known of lobelia, that I got some lobelia, and gave it to dogs, and gave it in large quantities, but the dogs did not die. So that it is very doubtful whether lobelia is a poison. The amount of information which we possess upon it scientically is so very limited, that I am not justified in giving an opinion. It is toxical, but its influence is limited. It is used a great deal by herbalists; it is one of their favourite medicines." (*Report*, p. 73.)

The solicitor cautiously refrained from referring to the answers given to the same question which was put to Mr. Abraham and to Mr. Herapath. The former, in reply to the question, "Do you consider lobelia a poison?" says, "Decidedly: but in some parts of Lancashire it has been extensively recommended, I think by Dr. Coffin; and I believe that several cases of poisoning have occurred by its use; but many persons have great faith in its virtues, and it is used to relieve asthma, both popularly and professionally; it is an exceedingly acrid thing: there is no danger of its being used feloniously." (*Report*, p. 34.) In reply to the question, "What do you say as to lobelia?" Mr. Herapath remarked, "If you include lobelia, then you interfere with the herb-doctors, and very properly, because I believe there is more danger from the unlimited sale of herbs, than there is from the articles in a druggist's shop. I have known cases of death from lobelia." (*Report*, p. 55.)

Because there is no danger of lobelia being used feloniously, and because it was not included in the list of poisons—the sale of which was proposed to be limited by certain restrictions, the solicitor argued that lobelia was not a poison. As reasonably he might have argued that tobacco and a hundred other substances are not poisonous.

The magistrates committed the herbalist to take his trial on the charge of manslaughter at the Lent assizes. At the trial, before the Chief Baron Pollock, the prosecution broke down because the woman who had charge of the child deposed that she had not given a dose of the "stuff" for several days before its death. Before the Coroner the same witness had deposed that she had given the medicine daily from the first, and the last dose on the evening before the child was found dead in the morning.

The facts upon which I lay the greatest stress in this case as indicative of acro-narcotic poisoning, are, that the body was in good condition, and therefore the child did not labour under any serious chronic disease; that the scratched and discoloured condition of the face was effected under the influence of pain, and indicated considerable suffering; that the body was not rigid, the limbs being quite flexible twenty-six hours after death; that the mucous coat of the stomach was injected, red, and corrugated, and of the duodenum somewhat injected; that the blood was fluid; that the vessels of the brain and membranes, and of the spinal cord and theca, were considerably distended, the cerebral ventricles and spinal canal containing serous fluid; and lastly, that the urinary passages also showed considerable irritation.

In all the recorded cases of death from lobelia, I find that the appearances presented by the stomach in this case are characteristic of this kind of irritant poisoning; and there can be no reasonable doubt that in many cases in the hands of illiterate herbalists its use has proved fatal. Dr. Hassall informed me that he considered the corrugated condition of the mucous membrane of the stomach as very characteristic of lobelia poisoning, inasmuch as he had seen it in every instance which had come under his notice. This gentleman at once recognised the lobelia seeds in a microscopic examination of the sediment before referred to. There have been very

many inquests and trials for manslaughter from the administration of lobelia by ignorant quacks and herbalists, both in this country and in America; but the convictions have been few. The most extraordinary fact is, that the man who has been mainly instrumental in introducing lobelia into public notice in this country, boldly asserts that it is not poisonous in any shape, or under any circumstances. I suspect that its emetic effects in most cases where it has been taken with impunity have constituted its safety. The question of the poisonous properties of lobelia, I will reserve for a future occasion, inasmuch as I have been and still am engaged in a series of experiments with its different preparations, and active principle, with the view of determining its precise toxic effects.

SOUTH-EASTERN BRANCH: ROCHESTER, MAIDSTONE, GRAVESEND, AND DARTFORD DISTRICT MEETINGS.

ON THE CAUSES OF FEVER.

By John Grantham, Esq., F.R.C.S., Crayford, Kent.

[*Read at Dartford, September 28th*, 1860.]

The purport of this paper is to provoke some practical remarks on the subject of fever. With many of us, experience, aye, and long experience, have testified to the many difficulties that arise in the prevention and treatment of fever, varying as the type has done from so many causes. And by the term fever, I mean every variety, from the simple form of fever to the most formidable character of cholera, dysentery, and typhus.

In the year 1845, I published a paper in the *Medical Gazette*, on the Therapeutic Effects of Nitrogen in Typhoid Fever; that is, during the comatose stage of fever; in which paper, reference is made to the causes of fever. My opinion was then, as it now is, that under certain influences a morbid poison is generated by the vegetable kingdom, which is capable in two ways of becoming a cause of disease to man; namely, by entering his respiratory organs (containing the enormous number of six hundred millions of air-cells) with the air which he breathes, and being thus absorbed into the system; and secondly, by its admission into the alimentary canal, in combination with his food, and thus becoming involved in the function of assimilation. A third mode may be recognised when the vegetable poison has communicated disease to animals forming the food of man. Malaria is therefore the product of a putrefactive action amongst vegetables and animal matter; and this agent being admitted into the tissues of man, gives rise to similar putrefactive products requiring the aid of the alimentary canal, the kidneys, and the skin, for their separation and removal from the system. There is also another cause. The continued respiration of an atmosphere, charged in a far inferior degree with the exhalations from the lungs and skin, is among the most potent of all the predisposing causes of disease, and especially of those zymotic diseases whose propagation seems to depend upon the presence of fermentable matter in the blood.

I now ask—Will putrefaction of either animal or vegetable matter generate fever in a healthy subject; that is, when all the secretions are normal? Can moisture or damp, apart from a depressed condition of the vital laws, produce fever? Is not the skin, with its thirty miles of tubing, in its assimilative function, the principal organ of the body in sustaining health, and in protecting the body from the influence of the exciting causes of fever?

In illustration of the positive effects of putrefaction in the causation of fever, I will read the following narrative, published in Dr. Render's *Tour through Germany in* 1801. The case was briefly this:—

"In the month of July 1770, a very corpulent lady died at ——, in ——. Before her death, she begged, as a particular favour, to be buried in the parochial church. She had died on the Wednesday; and on the following Saturday, was buried, according to her desire. The next day, the clergyman preached her funeral sermon; the weather was uncommonly hot, and it ought to be observed, that for several months preceding her death, a great drought had prevailed, not a drop of rain had fallen, and consequently it was an uncommonly sultry season. The succeeding Sunday, a week after the lady had been buried, the Protestant clergymen had a very full congregation, upwards of nine hundred persons attending—that being the day for administering the holy sacrament. The weather still continuing very hot, many were obliged during the service to walk out for a time to avoid fainting, whilst some had actually fainted away. It is the custom in Germany, that when people wish to receive the sacrament, they neither eat nor drink (that day) till the ceremony is entirely over. The worthy clergyman preached about an hour and a quarter; he then consecrated the bread and wine, which ought to remain uncovered during the ceremony. There were about one hundred and eighty communicants. A quarter of an hour after the ceremony, before they had quitted the church, more than sixty of them were taken ill. Several died in the most violent agonies; others of a more vigorous constitution survived by the help of medical assistance. A most violent consternation prevailed through the whole congregation and town. It was concluded that the wine had been poisoned; and so it was generally believed. The sacristan and several others belonging to the vestry were immediately arrested, and put in irons. The persons accused underwent very great hardships, but they still persisted in their innocence. On the Sunday following, the magistrate ordered that a chalice of wine uncovered should be placed for the space of an hour upon the altar; which time had scarcely elapsed, when they beheld the wine filled with myriads of insects; and by tracing whence they came, it was at length perceived by the rays of the sun that they issued from the grave of the lady who had been buried the preceding fortnight. The people not belonging to the vestry, were dismissed, and four men were employed to open the grave and coffin: in doing which, two of them dropped down and expired on the spot, and the other two were only saved by the utmost exertion of medical talents. It is beyond the power of words to describe the horrid sight of the corpse when the coffin was opened. The whole was an entire mass of putrefaction; and it was now clearly demonstrated that the numerous insects, both large and small, together with the effluvia which had issued from the body, had caused this pestilential infection which was a week before attributed to poison." (See a pamphlet published at Leipsic in 1770, on the *Pernicious Consequences of Burying in Churches.*)

NEURALGIC AFFECTION OF THE CŒLIAC PLEXUS OF NERVES.

By Adam Martin, M.D., Rochester.

[*Read at Dartford, Sept. 28th*, 1860.]

November 4th, 1854, I was called to Master C., aged 10 years, of a delicate and nervous temperament, living in a low and marshy situation, and in a cold comfortless house. He was lying with his head inclined over the chest, and his knees drawn up to his stomach, and was suffering intense pain all over his belly, which he could not bear to be touched. The skin was soft; the face rather flushed; the pulse upwards of 130, and very weak; the tongue was clean and moist; he had no thirst, and no appetite; the bowels were confined. He had been several hours in this state. I ordered him five grains of calomel to be taken at bedtime, and a senna draught in the morning.

It appeared from the history of the case that he was seized about two years previously with a cold shivering fit, which was followed by a severe pain in the region of the stomach, and with violent vomiting. The pain and vomiting returned at uncertain intervals, and without being preceded by the cold shivering, for about three weeks, when they ceased under medical treatment. He was again seized two months afterwards in a similar manner, and was on this occasion treated with leeches, blisters, and salivations; after which, the attacks became more frequent and more severe, and returned several times every day and night for many weeks past.

November 5th. He is at present free from all pain, and looks cheerful and active, but very thin and pale. The pulse is quiet; he has no thirst; the appetite is not good; the bowels have acted freely from the powder and draught. When the different attacks begin, he describes the pain as beginning in the pit of the stomach, and gradually increasing and extending to all parts of the abdomen, which he cannot bear to be touched when the pain is present. The attacks have of late returned five or six times in twenty-four hours, but at no regular periods.

I deem it unnecessary to occupy the time of the meeting by a daily or weekly report of the progress of this very painful case, and shall only state from the commencement of the following treatment, the patient began to improve, and continued to do so until February 24th, when he was discharged, free from all attacks, and in very good general health, which has continued up to the present time.

Treatment. He commenced by taking a calomel purgative every third night, and the citrate of iron and quinine three times a day. He continued this course until the end of December, at which time he began to take the saccharated carbonate of iron, which he continued to take regularly until cured.

Remarks. This case is similar in all its symptoms to the one which I read before this meeting last year, and which arose from a highly disordered state of the digestive functions; but is different in its cause, which, I believe, was marsh miasmata. It proves the necessity of distinguishing accurately between neuralgic and inflammatory diseases—the former being much aggravated and confirmed by all depletory and exhausting measures, which may or may not be necessary in the latter. It proves also the efficacy of iron in all such cases.

Reviews and Notices.

The Surgical Diseases of Children. By J. Cooper Forster, Fellow of the Royal College of Surgeons; Bachelor of Medicine of the University of London; Assistant-Surgeon to, and Lecturer on Anatomy at, Guy's Hospital; Surgeon to the Royal Infirmary for Children, &c. Pp. 348. London: John W. Parker and Son. 1860.

It is certainly somewhat surprising that up to the present time we have had no complete systematic treatise on those morbid conditions of children, which specially require the interference of the surgeon; while our standard literature of those diseases which come under the eye of the physician has reached a high degree of excellence. To supply this obvious want, is Mr. Forster's object on the present occasion. His extensive experience, derived from the hospitals to which he has for some years been attached, enables him to write with authority: and he states in his preface, that the entire matter of the work is original; that the records which it contains have been principally derived from his own experience, many of the illustrative cases, however, having been derived from the wards of his colleagues at Guy's. Following out this plan, Mr. Forster has produced a very instructive volume; the appearance of which we greet with much pleasure. Still we would venture a suggestion; that, with the material which he has so ably gathered by his own labour as a groundwork, he should on some future occasion thoroughly digest both it and the observations and advice of other writers into a complete treatise on the science and art of the surgery of children. We do not mean by this that the work is defective; on the contrary, it is remarkably complete—nothing, indeed, of the least practical value seems to be unnoticed.

The volume before us contains twenty chapters; which, after an introduction on Anæsthetics and Nursing, treat in succession of the Diseases and Injuries of the Head, Face, Mouth and Tonsils, Larynx and Trachea, Pharynx and Œsophagus, Rectum, Trunk, Urinary and Generative Organs in the Female and in the Male; of Calculus in the Bladder; of Diseases of the Testis; of Hernia; of Nævus; of the Injuries and Diseases of the Bones, Joints, Skin, and Ear; of Congenital Deformities and Malformations; of Tetanus; and of Scalds and Burns.

In regard to Anæsthetics, Mr. Forster regards chloroform as so safe in young children, that he never performs any operation on them without it, except excision of the tonsils. Local anæsthesia by ice, on the other hand, he holds to be inapplicable, on account of the pain produced, until an age verging on puberty is reached.

In speaking of Hare-lip, Mr. Forster remarks that it often is hereditary: and that in all the instances of this which he has seen, the father, and not the mother, has been the subject of the deformity. His experience is decidedly in favour of operating at the earliest possible period: remembering, however, that loss of blood in early infancy may be attended with the worst consequences. He would, indeed, have no hesitation in operating immediately after birth; and he says that the operation has been performed on children but seven hours old. He generally discards pins; because, in almost all the cases in which he has seen them used, there has been a scar left at the points of entrance and of exit. In this respect, and in depending on sutures alone, his practice resembles that of Mr. Erichsen, as described in his treatise on the *Science and Art of Surgery*, second edition, page 715: with these differences, however, that, while Mr. Erichsen uses the interrupted suture, Mr. Forster employs the interrupted; that Mr. Erichsen inserts a point of suture through the mucous membrane, while Mr. Forster takes care to avoid this structure; and that, while Mr. Erichsen speaks favourably of an apparatus in certain cases for compressing the cheeks and keeping the parts in apposition, Mr. Forster has never seen any necessity for its use. Any way, it is very evident that both these able surgeons, however differing in some details, have succeeded in proving that the pins and twisted suture are not indispensable adjuncts in the treatment of hare-lip.

On the subject of the complication of hare-lip with cleft palate, we find the author observing, at page 35, that, when this condition occurs, it is advisable to perform the operation at the earliest possible time, as it induces an approximation of the parts behind; in some of these cases, he says, the fissure of the palate will almost entirely disappear. This opinion is, it will be observed, entirely in accordance with that expressed by Mr. A. Prichard at the conclusion of his paper in last week's Journal.

In the treatment of Œdema of the Glottis, from the drinking of hot fluids, Mr. Forster finds no encouragement to perform or to recommend tracheotomy, although it is the usual practice in Guy's Hospital.

"If it," he says, "diminishes the risk from one source of danger, it introduces others which did not previously exist: and it is hardly possible to say, until life is all but extinct, whether it will be necessary or not. . . . What, then, is to be done? We must not expect to save all. No one can remember the delicacy of the membrane lining the air passages without being surprised that such cases should ever recover. Of all the means that can be employed, I think antimony and ipecacuanha the most effectual. They must be given in full doses, varying according to the age of the child; frequently repeated, perhaps every quarter of an hour at first, gradually increasing the intervals; and they should be continued until there is decided relief to the symptoms. I have never known them, in these cases, produce vomiting. . . . I have given to a child fourteen months old, under these circumstances, half a drachm of antimonial wine every half-hour for six hours, and the child recovered without any ill effects. I am happy to find that Dr. Bevan of Dublin recommends a somewhat similar plan of treatment.

"If the patient continues to get worse, tracheotomy can be had recourse to. I am not prepared to say that, if the child could be placed in a warm room, and the temperature equably maintained at a temperature of about 80, the air being fully saturated with moisture,—in fact, in the temperature of an orchid-house,—tracheotomy might not be advisably had recourse to at once. But practically this is attended, except in very few instances, with very great difficulty." (Pp. 53-57.)

We think that the evidence brought forward by Mr. Forster, by Dr. Bevan of Dublin, and by Dr. Sloane of Leicester in a paper published in this Journal some time ago, go far to show that, in scalds of the glottis in children, early and active constitutional treatment is likely to do all the good that can be expected—and much more good than tracheotomy; and that operative interference should be reserved as a *dernier ressort*.

In Tracheotomy, Mr. Forster dissents from the general recommendation that the trachea should not be opened until all hæmorrhage has ceased, unless the bleeding be arterial. When the hæmorrhage is altogether venous, as it usually is, the most advisable plan is to relieve as quickly as possibly the embarrassed circulation, and thus allow the blood to return to the heart. Hence, especially when tracheotomy is performed to avert impending suffocation, he opens the trachea as soon as possible and turns the child on its face. "Almost invariably,

immediately the opening is made and respiration has become established by the wound, the congestion of the veins is relieved, and the hæmorrhage ceases." In giving this sound advice, Mr. Forster is supported by the authority of several eminent surgeons—Fergusson and Erichsen among the number.

Polypus of the Rectum in Children, an affection which was noticed in a communication made some time ago to the Medical Society of London by Mr. Bryant, has been several times observed by Mr. Forster, who states that his attention was first directed to it about ten years ago by Dr. Willshire. The patient is usually supposed to have prolapsus; but the presence of hæmorrhage determines the diagnosis. The cases are usually seen by the surgeon early; and the polypi may be removed by tearing with the nail, or by ligature. The occurrence of rectal polypus in children, we may observe in passing, appears to be familiarly known to the French surgeons.

In looking through the chapters on diseases of the Urinary and Generative Organs, we notice that the subjects of Calculus in the Urethra and Bladder, and of Extravasation of Urine, are very fully treated of. Mr. Forster holds that extravasation of urine, in boys, as denoted by swelling of or around the urinary organs, is, if not due to accident, invariably caused by calculus in the urethra. The treatment which he recommends in such cases is thus summed up:—

"1. Attend to the earliest symptom; viz., retention of urine in children; 2. Incise freely the parts into which the urine has been extravasated; 3. Search for and remove the calculus immediately; 4. Do not pass a catheter." (P. 155.)

In speaking of Nævus, Mr. Forster calls in question the commonly received opinion that the affection is congenital; although he allows that it sometimes is so. The nævus is generally observed about a month after birth: and he thinks it more probable that it may originate about the time of its discovery—possibly from some one of the minor accidents to which infants are liable. He classifies nævi into the cutaneous, the subcutaneous, and the mixed; the last being by far the most common. The subcutaneous variety, especially when covered by a mass of condensed areolar tissue, may be mistaken in the neck for the condition known as hydrocele of that region. The presence of fluctuation, and the apparent possibility of being able to empty the swelling by pressure, might in some cases also cause a confusion of diagnosis between medullary cancer and subcutaneous nævus.

In the chapter on the Treatment of Nævus, Mr. Forster describes the various methods which have been practised; viz., excision, pressure, ligature of vessels, vaccination, irritants and escharotics, introduction of caustic into the substance of the nævus, the seton, heated wires and the actual cautery, needles and twisted sutures, injections, and ligature. Excision is applicable in four classes of cases, viz.: 1, in pendulous nævi in the loose skin about the neck or on the labia in the female; 2, in nævi of the lip; 3, in all cases of degenerated nævus, where hæmorrhage is not likely to occur; 4, in cases of subcutaneous nævus, where, on account of the difficulty of diagnosis, the surgeon has determined to remove the growth. Pressure is efficient in cutaneous nævi about the scalp; and may be tried in other situations when the nævus is very extensive or when an operation is dreaded, although it cannot be relied on. Mr. Forster believes, however, that nævus has been sometimes unconsciously obliterated by the pressure of the dress; as when it has been situated over the ribs. Injection of solution of perchloride of iron is the plan always followed by Mr. Forster in cases where the nævus is of the true subcutaneous type, the skin not being involved, and when it is situated on a conspicuous part of the body where it is desirable to avoid a scar.

In the treatment of nævus by ligature, Mr. Forster has been led, by the successful result of a case in which the thread accidentally became detached four hours after its application, to adopt a modification of the ordinary plan.

"The simplest way of applying the ligature is to place two pins at right angles to each other under the nævus, and encircle the whole with a ligature of four-twist thread. This should be tied in a bow-knot so tightly as to strangulate the part; the pins should then be removed. At the end of four hours, I untie the knot and remove the ligature. This plan is suitable for very small nævi, of the mixed or cutaneous kind. . . . . I find that the nævus dries up and forms a kind of scab, which separates at the end of fourteen days or so, leaving a healed surface underneath. The *rationale* of the treatment appears to me to be, that the vessels compressed by the ligature have the circulation in them arrested for a sufficient time to allow the blood to become consolidated, but are not entirely obliterated so as to cause the parts to slough; consequently, the strangulated mass becomes atrophied, and is thrown off without inflammation by the healthy parts underneath. The scar on this plan being less than when other forms of ligature are employed, it is of course especially adapted for nævus on the face." (Pp. 237-9.)

With this extract we must conclude our notice of Mr. Forster's work; for the subjects treated of in it are too numerous for further analysis. We were pleased at its appearance to fill a want in our medical literature; and have been much gratified in its perusal. It is throughout a work of the practical kind; and will, there is no doubt, be consulted with justly founded expectations by many a practitioner who has under his care a little patient requiring surgical aid.

Skin-Diseases and their Remedies. By Robert J. Jordan, M.D., Licentiate of the Royal College of Physicians, Edinburgh; Member of the Royal College of Surgeons of England; etc. Pp. 283. London: Churchill. 1860.

Dr. Jordan states in his preface that he has "often thought there was a want of a brief, yet exact, work on Skin-Diseases, which might serve as a handy-book for reference." We are certainly rather surprised at this announcement, as we have for some time had the idea, that there is at least one sufficiently concise and complete treatise on the subject in circulation among the British medical public. To summarily dismiss a new book on such a ground would, however, be most unscientific and unjust; for we do not know but that our author has filled up some great chasms in dermatological science. Let us examine.

Dr. Jordan commences with an Historical Introduction on the subject of Skin-Disease. In very readable language, he runs through, in fifty-two pages, the history of the subject. Commencing with a notice of the sufferings of the patriarch Job, and glancing at the history of skin-disease in Europe in the early period, in the middle ages, and in modern times, he finishes the introduction with some very correct remarks on the general causation of maladies of the skin.

Proceeding now to treat of Diseases of the Skin in order, the author follows the classification of Willan; and concludes with some chapters on the Diseases of the Hair and Nails. On examining the book with some care, we have been unable to discover that which we thought might possibly have served as a good reason for writing it—the announcement of something new and valuable; while we have noticed an apparent deficiency of knowledge regarding at least one therapeutic agent, to which in recent years much value has been attached in the treatment of certain cutaneous maladies.

The conviction has forced itself on our mind, that this book is one of those which we cannot conscientiously praise, however correct it may be in its details. We have a very strong idea (it may be an uncharitable one) that Dr. Jordan (who, it appears from the *Medical Register*, only gained his legal qualifications to practise in 1859) is ambitious of curing the skins of as many of Her Majesty's subjects as will place themselves under his care. A very honourable and philanthropic design, no doubt; but we do not like the way of beginning the work. All that we can say is, that Dr. Jordan seems to be well read in his subject; and, for aught we know, may have been a diligent ob-

server of the practice of some great skin-curer; but, beyond this, we do not think that he has made such a valuable contribution to medical literature as he imagines. It may serve its present object of gaining him practice; but when, some ten or twenty years hence, his sun is, perhaps, in a fair way of outshining the lights of Willan and Wilson, of Alibert and Hebra, he will probably look back on his literary labour of 1860 as a very commonplace production.

Illustrations of Puerperal Fever. By Edward Copeman, M.D.; Member of the Royal College of Physicians; Fellow of the Royal College of Surgeons; Physician to the Norfolk and Norwich Hospital, Eye Infirmary, etc. Pp. 137. London: Churchill. 1860.

This work is intended by Dr. Copeman as a development of his views on the pathology of puerperal fever, and especially to illustrate the benefits derivable from the use of turpentine in that disease. In 1856, he published a paper giving his experience, up to that period, of the treatment of puerperal fever by turpentine, in which he states that the almost constant and essential symptoms of the low form of the disease are rigor; abdominal or uterine pain, uneasiness, or tenderness; rapid pulse; disordered sensorium; tympanitic body; and depraved lochial secretion. A very frequent precursory symptom is sleeplessness; and this should be sufficient to put the physician on the alert, and to lead him to resort to measures for the prevention of impending mischief.

The mode in which turpentine is given by Dr. Copeman is in drachm doses, in simple water or brandy and water, several times daily, according to the requirements of the case. In his former paper, he stated that, of twenty-one cases treated in this way, there had been fifteen recoveries; he now adds thirty-six cases, making in all fifty-seven, of which thirty-eight recovered, and nineteen died.

Dr. Copeman observes that—

"Undoubtedly much care and judgment are required in the administration of turpentine; some persons are less tolerant of it than others: if it be persevered with after it has seemed to disagree, it may do much harm; when it is still persisted in after the stomach has rebelled against it, its further effects are more pernicious than salutary. But, on the other hand, I have seldom found it disagree during the time that its internal administration is needful; and, even when not more than one or two doses can be borne by the stomach, it can still be used with immense benefit as an external application, or as an injection into the rectum. In proof of this, patients will often call for it and request its continuance owing to the relief it affords; and in some cases, where it cannot be long persevered in even in this way, in consequence of disordered stomach occasioned by its smell, it may yet have sufficiently subdued the local disease to prevent further contamination of the blood, and thus allow the existing blood-disease to be cured, perhaps but slowly, by quinine, cinchona, and other restoratives, wine, and nutritious diet.

"I can best exemplify the mode of treatment I am anxious still to advise, by relating the cases I have myself treated; and I trust the number produced, with the experience connected with them, will protect me from the charge of presumption on the one hand, and justify my desire to make converts to the use of turpentine on the other. I would go so far as to say that it would be good practice in every case where sleeplessness and abdominal or uterine pain from any cause arise subsequently to labour, to apply a turpentine fomentation to the abdomen; and, if any aperient be necessary, to give the preference to an enema containing turpentine and castor oil in gruel or soap and water." (Pp. 8-9.)

A number of carefully reported cases are given by the author in illustration of his practice. It appears to be worthy of the consideration of accoucheurs, in so formidable and fatal a disease as puerperal fever.

British Medical Journal.

SATURDAY, OCTOBER 13th, 1860.

THE TREATMENT OF DRUNKENNESS.

We are not surprised to find that the question of drunkenness was very prominently discussed at the late Social Science Congress at Glasgow. The very painful statistical proofs that have been given to the world of the extraordinary prevalence of this vice in Scotland, and in Glasgow especially, most certainly called for the interference of a body or gentlemen specially called together to discuss social topics. It is not, we believe, seriously imagined that drunkenness can be put down by act of parliament, and the adherents of the Maine Liquor Law clearly do not understand the feelings or the instincts of their countrymen. What, then, is to be done to get rid of this blot upon our social life? How are we to check a vice which fills our asylums with insane, and our hospitals with a very large number of their inmates? Mr. A. Kirkwood at the Glasgow meeting cut the Gordian knot very shortly, by proposing that all habitual drunkards should be placed under restraint, with a view to their reformation. He proposed that lunacy should be declared to include habitual drunkenness; that separate asylums for the reception of such persons should be licensed as such by the sheriff; that the sheriff should have the power to send drunkards to these asylums, either upon their own application, or the application of relatives, and upon the certificate of two medical men; and that the sheriff should have the power of detaining them a period from six months to two years, as necessary. Certainly our friends in Glasgow are improving upon the Maine Liquor Law. Only imagine a man having the power to imprison a relative for two years on such a plea! Will Mr. Kirkwood kindly inform us, in the first place, when a man is to be considered a habitual drunkard? There are some men who go to bed drunk every night of their lives, but yet get up again in the morning not very much the worse for their potations. Are such as these to be rendered liable to a two years imprisonment in an asylum? Is the man who muddles himself all day with dram-drinking, to come under Mr. Kirkwood's Act? If so, we may well ask, where are we to find asylums large enough to hold all the offenders? We are afraid any such law as Mr. Kirkwood seems inclined to support would be totally inoperative, or if operative, only so in cases where the drunkenness would be used merely as a pretext for getting the individual charged out of the way.

But what, we may ask, is the cause of the great mass of drunkenness which meets us at every turn? We think the Rev. A. McLeod has very well answered this question, in his paper, read before the meeting, "On the Methods and Limitations in the Repression of Drunkenness among the Poor". The reverend gentleman sees that drunkenness, in the vast majority of cases, is a consequence rather than a cause of misery. He knows full well the effects of wretched homes, starvation, and rags upon the human frame; and he logically concludes that improvement in these respects must necessarily precede any attempts to spread temperance among the people. Sanitary science in the widest acceptation of

the term, is the true Maine Liquor Law. At the present moment, although every facility is given to the poor man to procure any quantity of intoxicating liquor, there are no facilities of a like nature for his procuring nourishing food. What food he gets is notoriously spoiled in the cooking; and the question arises—and we ourselves have often suggested its solution in a like manner—Cannot we provide large cooking establishments, where cheap and wholesome food (the great enemy to intoxicating drink) may be provided for the poor? Mr. McLeod is clearly of this opinion; and he also suggests that here young girls may be trained in the art of cooking. Such methods of reform as these may be very tedious, and require time for the accomplishment of their object; but we feel certain they will prove the only effectual means of checking the preventable drunkenness so commonly met with.

There is a class of drunkenness, however, which cannot be touched by these means—we allude to that which bears the psychological term of dipsomania. Here the objections to legal restraint become reduced to the minimum point, even if they exist at all. We are glad to see that our associate Dr. Alexander Peddie, brought this very important phase of drunkenness before the Congress, and very ably discriminated the cases which should, in his opinion, be rendered the subjects for legal restraint.

"Thus, he averred that, while dipsomania in some instances results from acquired vicious habits, it occurs likewise from an insane transmitted tendency, and is most frequently visited on children for the sins of their parents—especially when the latter have suffered from repeated attacks of *delirium tremens*, or have been confirmed dipsomaniacs, and is sometimes met with even in the offspring during the years of childhood. Dr. Peddie then proceeded to notice, that the affinities of dipsomania to insanity, was further illustrated by the fact, that while several extreme cases of the drinking propensity are found in certain families, there are also found often in the same families marked instances of mental disorder in other forms. Dr. Peddie then stated that when dipsomania occurs from constitutional organisation, the disease is of the worst type—more difficult to manage and more imperatively demanding control than when it has sprung out merely from a vicious habit. With it there is generally more eccentricity of habit and deportment, more perversity of mind and disposition, more untruthfulness and deceit. The victims of it are more unscrupulous in the means which they employ to gratify the ruling passion of existence. When the disease is fairly developed and allowed to take its course unrestrainedly, the moral sense becomes still more perverted, the whole conduct more vicious—in some leading to the commission of crimes which would not otherwise, perhaps, have been perpetrated—and the mental faculties at last become feebler, even until complete imbecility or hopeless mania, is the result. Dr. Peddie further remarked that, in whichever way the disease occurs, the pathological results and mental phenomena are the same. There is impaired volition, complete loss of self-respect and self-control; the sole desire of existence is to obtain stimulating drinks; and, to gratify for one moment the insane impulse, the victim of it would stake even his eternal welfare."

No physician accustomed to treat such cases would have the slightest difficulty in recognising such forms of drunkenness as simple phases of cerebral disease, and as much requiring restraint as any other form of lunacy. It is true, the number of such cases is not very large; but the misery they produce is not by any means in proportion to their numbers; and at present the law has no power over them, notwithstanding the manifest ruin they bring upon all persons dependent upon them.

For the treatment of dipsomania, Dr. Peddie proposes separate asylums, or sanitaria of a private nature, but subject to inspection, in which patients who offered themselves voluntarily should be treated only so long as they themselves determined; and, with regard to the compulsory patients, he would give the power to the sheriff to place them under care at the instance of any friend or public board. Of course, such a power would have to be watched narrowly, lest it should impinge upon the liberty of the subject.

There is one weak point, however, in Dr. Peddie's plan, which is common to all schemes for the treatment of patients of this character; namely, "that no one is to be detained longer than is essential to his recovery". Now, if Dr. Peddie means by this "temporary recovery", we fear the reformatory process will be of little avail, inasmuch as the paroxysm is pretty certain to return; and the individual would thus spend his time between qualifying himself for the asylum and qualifying himself for society—society, unfortunately, getting the worst of this system of alternation. It may be said, that we should not treat the dipsomaniac worse than a person afflicted with any other form of insanity. But the stages of sanity and insanity in his case are of very much shorter duration than in the other; indeed, the total prohibition of all stimulants is the only method of treatment available with the dipsomaniac; and when the case is confirmed, we do not see that any other means than that of permanent detention would be of much value. We do not deny that there are very many cases in which there is sufficient moral control in the individual to render the threat of temporary incarceration in an asylum effectual; but the larger power of permanent detention would undoubtedly be required in some cases to meet the evil; and we do not think that reformers in this direction should blink the truth. Where reform cannot be counted upon, permanent detention is imperatively called for.

Association Intelligence.

BRANCH MEETING TO BE HELD.

NAME OF BRANCH.	PLACE OF MEETING.	DATE.
Birmingham and Midland Counties. [General Meeting.]	Hen and Chickens Hotel, Birmingham.	Friday, October 19th, 6 P.M.

Reports of Societies.

MEDICAL SOCIETY OF LONDON.

Monday, October 8th, 1860.

A. B. Garrod, M.D., F.R.S., President, in the Chair.

This was the first meeting of the session. There was a good attendance of members.

ON SOME CHEMICAL QUESTIONS IN CONNECTION WITH DISEASES OF THE LIVER AND THEIR TREATMENT.

BY J. L. W. THUDICHUM, M.D.

Dr. Thudichum commenced by referring to a paper on gallstones, formerly read by him before the Society, and published, with illustrations, in the British Medical Journal nearly a year ago. In it he had stated that he had observed, in the centre of some biliary calculi, certain peculiar pathological formations which he interpreted as casts of the biliary ducts; and that this interpretation had been confirmed by many others to whom he had shewn the specimens.

The casts of the biliary ducts, thus described, were found by Dr. Thudichum to contain a large quantity of cholochrome (colouring matter of bile) precipitated in a granular form. The presence of this substance was evidently not due to mere imbibition, but denoted the breaking up of the process by which it had been held in solution in the healthy bile. This

had led Dr. Thudichum to investigate the properties of cholochrome; and he had arrived at certain results in regard to it, part of which he had communicated to the Physiological Section of the British Association at Oxford and to the British Medical Association at Torquay. He now proceeded to recapitulate these results, with additions; then to construct a doctrine of the formation of gall-stones; to describe some original investigations on the parenchyma of the liver in health and in disease; and to give some hints as to the treatment of liver-diseases.

Dr. Thudichum then gave an account of the experiments he had made with the view of determining the composition of cholochrome, an abstract of which has already appeared in this Journal, July 14th, 1860, p. 550. He then went on to describe some experiments which he made on the changes undergone by bile during putrefaction. Some large bottles, full of bile, had been allowed to stand for two years and one year respectively. The bile had assumed a feebly acid reaction, a bright port wine colour, and had deposited a copious flaky green and brown deposit, mixed with white chalk-like particles and greenish crystals. This deposit, on analysis, was found to consist of cholochrome, cholic acid, phosphates of lime and magnesia in dichroic crystals, and mucus. The fluid part of the bile was found to contain cholate of soda, taurine, and acetate of soda, phosphate of soda, and some valerianate of ammonia; but no glycocoll, nor any tauro- or glycocholic acid. It was quite clear that the bile had spontaneously undergone that decomposition which is effected by boiling with acids or alkalies, a decomposition which, in its main features, has already been described by Gorup-Besanez. Glycocholic and taurocholic acids had split respectively into glycocoll, taurine, and cholic acid. Some valerianic acid had been formed from some decomposing substance or other, which had combined with ammonia, probably arising from the decomposition of glycocoll. Glycocoll, being the amido-acid of acetic acid, no doubt in this process, as in the putrefaction of urine, yielded the acetic acid, which combined with the necessary amount of soda, and precipitated a portion of the cholic acid; while the greater portion of this acid remained in solution, combined with soda. The cholochrome had no doubt been precipitated by the new acid before cholic acid, as its acid properties are much less pronounced.

In examining human gall-stones, Dr. Thudichum had found a resinous matter; of which, however, he had been prevented by the small quantity and other difficulties from determining the composition. In ox-gall stones, however, he had succeeded in finding cholic acid, in such quantity that there could be no doubt of its having been deposited with the cholochrome during the formation of the concretions in the living animal. The presence in almost all biliary concretions of earthy and alkaline salts pointed in the same direction. These were either present in the form of phosphates and carbonates of lime and magnesia, or were combined with the colouring matter of the bile. In gall-stones from man, the colouring matter was accompanied by a larger proportion of inorganic salts; but in gall-stones from the ox, the quantity of cholochrome preponderated to so extraordinary a degree over the earthy matter, that it must be assumed to be present in the free state, and not as some have supposed it to be always, namely, combined with lime.

As matters now stand, the essential constituents of gall-stones seem to be cholochrome, cholic acid, and earthy salts. In man, gall-stones contain a large amount of cholesterine in most cases; but that is a secondary and accidental ingredient, and is mostly crystallised around the other matters forming the nucleus. There are human gall-stones which, like those from the ox, contain no cholesterine. Others are said to consist entirely of cholesterine—a statement which has to be verified by fresh analyses, which must prove the absence of cholic acid. Stearate and palmitate of lime are usually present in human gall-stones. The idea of an inspissation of mucus in the formation of gall-stones was shown by the author to be untenable; the binding material of the concretions is cholic acid.

The process of the formation of gall-stones was explained by Dr. Thudichum to be perfectly analogous to that which produces phosphatic calculi in the urinary bladder. The compound amido-acids (taurocholic and glycocholic) split up under the influence of a cause of which the nature remains to be ascertained—probably a ferment from the intestinal canal. They deposit cholochrome and a portion of cholic acid, some salts, and a little fat, under the influence of acetic acid derived from glycocoll. In man, gall-stones contain cholesterine; this has, in the healthy bile, been held in solution in taurocholate of soda; but when the taurocholic acid is decomposed, the cholesterine is set free, and is deposited on any particles which may be at hand. In other words, the process of formation of gall-stones is the following.

Healthy bile contains taurocholic and glycocholic acids, in combination probably with soda. Under the putrefactive change, these two acids split up; the taurocholic acid yielding taurine; and the glycocholic acid, glycocoll. Cholate of soda is left; the glycocoll is destroyed, and is transformed into acetate of ammonia. Valerianic acid is also formed, and combines with the ammonia from the glycocoll. Some free acetic acid then sets free the cholic acid from the cholate of soda, and the cholic acid is then precipitated in combination with cholochrome, so as to form casts of the tubes. This takes place in the ox; in man, cholesterine is also deposited in consequence of the breaking up of the taurocholate of soda, which has held it in solution.

Within the last few weeks, Dr. Thudichum had examined the products of decomposition of fibrine, and had found among them cholesterine; which, with a gritty matter and an oil-like body, were left when all the matters soluble in water were removed. The presence of cholesterine and gritty matter in atheroma led to the question whether this condition was not a simple result of the decomposition of fibrine or of albuminous matter, from which the soluble particles had been washed out. It was further a question whether the cholesterine in gall-stones might not in part arise from the decomposition of cholic acid.

Dr. Thudichum then noticed that the healthy action of the liver-cells consists in the absorption of certain albuminous, fatty, starchy, and saccharine matters, and their transformation into the ingredients of bile. When this becomes impaired, the cells assume a fermentative tendency, leading to the same description of decay in the albuminous matter as that which is induced by putrefaction or by treatment with acids or alkalies. He then proceeded to point out that the general principles elucidated in his paper could be applied in the treatment of all liver-diseases. In jaundice with obstruction of the biliary ducts, we should make early use of nitric acid or nitro-hydrochloric acid. He had with great benefit given a watery solution of nitrous acid. It is easily made, and may be drank as a pleasant lemonade. It is less apt to produce griping, which, during courses of nitric acid and aqua regia, is not rarely complained of. This acid not only destroys and lixiviates the deposits of cholochrome and other amido-acids, but it also tones the digestive organs, and acts antiseptically. Nevertheless, we are yet in want of a remedy to stay the abnormal action of the liver-cells. Creasote is beneficial. In all cases where the disorder of the liver proceeds from the intestinal canal particularly, creasote, charcoal, astringents like gallic acid, and preparations of iron, particularly the tincture of the sesquichloride given together with some nitric acid, are highly beneficial. In a case of desquamation of the epithelium of the kidneys consequent upon chronic jaundice, he had exhibited this latter mixture with the most decided benefit.

Nitric acid was introduced into the treatment of these diseases by Annesley. Many have used it since, with variable success. Dr. Thudichum believed that it is frequently not borne because it is not sufficiently diluted. The more it is diluted, the quicker it is assimilated, and the more certain are its effects.

It might appear paradoxical that a free acid should travel through the blood, and act upon certain parts through tissues. We are, nevertheless, obliged to admit the possibility of that occurrence. Thus oxalic acid and many other acids have been proved to have passed through the blood uncombined, and have been found in the urine in a free state. Even allowing that blood so mixed with nitric acid might show a precipitate, there is no reason why a molecular precipitate in the blood, which is full of molecules of its own, should not again dissolve.

All liver-diseases require the greatest attention to the intestinal canal. Mild purgatives of salts, or fruit, Pullna water, Seidlitz powders, water containing one per cent. of ordinary chloride of sodium and little sulphate, are the best remedies. If stronger purgatives are required, the vegetable ones deserve preference. The fatal error of treating with mercurials the various disorders of the liver, he could not sufficiently deprecate.

The diet should be juicy, include fruit and vegetables, and eggs and meat. Starch and fat are always badly digested.

The skin must be well attended to. Baths, with some aqua regia, stimulate the skin and open the epidermis.

In true bilious attacks, with indigestion, a furred, sometimes

yellow tongue, constipation, sickness and vomiting, headache, yellow appearance of face, and albuginea, he had found the use of blue pill mostly hurtful. Whenever he had been called upon to treat such an attack, his treatment had to deal with the effects of the biliosity and blue pill combined. In cases where such attacks, without previous excesses, become habitual, gall-stones are not rarely developed. He had known two cases to end in phthisis. One, that of a gentleman, married, about forty years of age, was yet under observation. In many cases of phthisis, in which gall-stones are found after death, this habitual biliosity did not rarely precede the disease of the lungs. But phthisis may also produce gall-stone disease.

Lastly, he adverted to the use of soluble phosphates. He had made the observation that bile contains no small amount of phosphate of soda. Without this salt, the assimilation of the fats must be imperfect. Considering, therefore, that the absence of the phosphate may be hurtful, and that its presence never has been found to be so, he was inclined to give it a further trial. It should be given in the food, together with chloride of sodium, or in a dilute solution in water. Since he exhibited before this Society the action of phosphates upon fatty acids, with which they produce an emulsion ready for transition into the blood, he had thought of combining the acids of cod-oil with phosphates, in order to make this substance more generally digestible.

Liebig has long since shown that the most pleasant manner of giving soluble phosphates consists in the administration of beef-tea; but where this extract cannot be had in a quite reliable form, a weighed quantity of the ordinary phosphate of soda, say to the amount of half a drachm or a drachm per day, or more where it is liked and well borne, is preferable.

In bile, soda preponderates over potassa. In the substance of the liver, the proportions are reversed. The relations of these two bases require further study. It is not probable that the one may substitute the other, and *vice versâ;* and hence the want of potassa may become a source of disease. It is known that this base prevails in the muscles, soda in the blood.

By thus attacking the liver from all sides, we shall soon succeed in obtaining a surrender of its secrets. This organ can in this way only be stimulated, while it is out of the reach of so-called medicinal stimulants. Torpid liver, sluggish liver, and the like, may be useful practical denominations; but they are not based upon any positive evidence. We much less want cholagogues than we require remedies to appease, subdue, and change the activity of the liver. The organ is accused of much of which it is not guilty. It is by the mouth that most diseases enter; and it is from the insults received from the direction of the intestinal cavity, that this patient and enduring organ—the liver—mostly derives its detriment.

Editor's Letter Box.

THE NEW OPERATION FOR STAPHYLOMA.

Letter from J. V. Solomon, Esq.

Sir,—In the very valuable address on Ophthalmic Surgery delivered by Mr. Square at the recent meeting of the Association at Torquay, that excellent surgeon has fallen into the error of assigning to my friend, Mr. Critchett, the merit of first treating staphyloma by stitching the conjunctiva over the wound made by the removal of the tumour.

This plan was originated by me, and communicated in a letter to Mr. Critchett in May 1857, with a request that he would give it an extended trial at Moorfields. In my letter, I claimed for the operation the following advantages over the old surgical methods:—the prevention of a large loss of vitreous humour; diminished liability to intraocular hæmorrhage; and the preservation of a good stump for the adaptation of an artificial eye. These results have been obtained in all the cases (seven) where I have applied the operation, which I term "the treatment of staphyloma by conjunctival occlusion." I may remark that temporary conjunctival occlusion forms an important element in an operation which I have devised, and practised with complete success, for the cure of the marked divergent strabismus which sometimes follows a badly performed myotomy of the internal rectus.

I am, etc., J. Vose Solomon, F.R.C.S.,
Surgeon to the Birmingham Eye Infirmary.

New Hall Street, Birmingham, Oct. 9th, 1860.

Medical News.

BIRTHS, MARRIAGES, DEATHS, AND APPOINTMENTS.

** In these lists, an asterisk is prefixed to the names of Members of the Association.*

BIRTHS.

Of sons, the wives of—

Butler, J. H., Esq., Surgeon-Major Bengal Army, at Haileybury College, on October 3.
*Hodges, Richard, M.D., Rochford, on October 4.
Obrist, Caspar, M.D., at Kilchberg, near Zurich, on Sept. 24.
Prance, R. Rooke, M.D., Hampstead, on October 8.
Tanner, T. H., M.D., Charlotte Street, Bedford Square, on October 4.

Of daughters, the wives of—

Alford, Henry J., Esq., Surgeon, Taunton, on October 3.
*Nicol, David, L.R.C.P., Swansea, on October 7.
Partridge, Richard, Esq., New Street, Spring Gardens, on October 6.
Tuke, J. Kingdon, Esq., Surgeon, Brighton, on October 7.

MARRIAGES.

Bain, James, M.D., H.M. Bombay Army, to Elizabeth, third daughter of the late Edward Piper, Esq., of Edinburgh, at Hamilton, Lanarkshire, on October 4.
Curteis, Frederick W., Esq., of Wissenden, Kent, to Maria L., eldest daughter of *W. Richardson, M.D., Tunbridge Wells, on October 9.
Nelson, Thomas, M.D., R.N., to Jane, second daughter of Commander G. F. Maurice, R.N., of Islington, at Holloway, on October 4.

DEATHS.

Clark. On October 6th, at Sutton, Surrey, Eliza, wife of *Willington Clark, Esq.
Dempsy, Charles, Esq., Inspector-General of Hospitals, at Woolwich, aged 55, on October 5.
Forsyth. On October 8, at Henley-in-Arden, aged 59, Rosetta M., wife of John Forsyth, Esq., Director-General of the Bengal Medical Establishment, Calcutta.
Hargood, Charles B., Esq., Surgeon, late of Battle, Sussex, on October 10.
Horwood, William, M.D., of Ridware, Staffordshire, in Holles Street, Cavendish Square, on October 5.
Morris, Harvey, Esq., Staff-Surgeon R.N., at New Cross, on October 4.
Rathke, M., Professor of Zoology and Medicine in the University of Königsberg, of apoplexy, lately.
Venables. On October 6th, at Blackheath Hill, Mary Ann, wife of R. Venables, M.D.
Wilson. On October 4th, at Runcorn, Horace, infant son of *H. Wilson, Esq.

Pathological Society of London. The first meeting of the Pathological Society will be held at the rooms, 53, Berners Street, on Tuesday evening, the 16th instant, at eight o'clock precisely.

Adulteration of Snuff with Lime. In the Report of the Excise Laboratory at Somerset House, it is stated that, in the manufacture of snuff known as "Irish" and "Welsh, the law permits the use of *lime water;* and some manufacturers have been in the habit of abusing this permission by using, not lime water alone, which is sufficient for the proper preparation of the snuff, but a thick mixture of that fluid and powdered lime, to an extent constituting an adulteration in its worst form, being physically injurious to the consumer, as well as a serious fraud on the revenue. It is not easy to suppress this practice, from the fact that a certain but undefined amount of lime is necessary in the manufacture of the snuffs in question; it being consequently difficult to obtain a conviction upon an analysis of the finished article. Within the past year, however, two manufacturers have been detected in the act of adding large quantities of a thick mixture of lime and water to the tobacco-stalks in process of being made into snuff, and have paid penalties in consequence, besides forfeiting the adulterated materials.

UNIVERSITY OF ST. ANDREWS:—MEDICAL EXAMINATION PAPERS. SEPTEMBER, 1860.

The following were the questions proposed to the candidates for the degree of M.D. at the recent examination:—

First Examination. First Part. To be translated into English. Cognitis indiciis, quæ nos vel spe consolentur, vel metu terreant, ad curationes morborum transeundum est. Ex his quædam communes sunt, quædam propriæ: communes, quæ pluribus morbis opitulantur: propriæ, quæ singulis. Ante de communibus dicam: ex quibus tamen quædam non ægros solum, sed sanos quoque sustinent; quædam in adversa tantum valetudine abhibentur. Omne vero auxilium corporis, aut demit aliquam materiam, aut adjicit, aut evocat, aut reprimit, aut refrigerat, aut calefacit; simulque aut durat, aut mollit. Quædam non uno modo tantum, sed etiam duobus inter se non contrariis adjuvant. Demitur materia, sanguinis detractione, cucurbitula, dejectione, vomitu, frictione, gestatione, omnique exercitatione corporis, abstinentia, sudore. De quibus protinus dicam. Give the origins or primary meanings of the following words: Astragalus, Blastema, Condyle, Cysticercus, Hemiplegia, Lithotrity, Peroneal, and Scaphoid.

First Examination. Second Part. *Chemistry.* 1. Water boils at 212° F. and freezes at 32° F. Is this statement universally true or only true under certain conditions? What are the corresponding boiling and freezing points in the Centigrade thermometer? Explain the method of converting degrees from one of these scales to the other. Reduce 100° F. to the Centigrade scale and 256° C. to the Fahrenheit scale. In the Arctic Regions would you prefer mercurial or spirit thermometers? 2. What compounds does Oxygen form with Carbon, Hydrogen, Sulphur and Phosphorus, and what are their respective formulæ? 3. Write down the formulæ expressing the composition of Nitre, Borax, Alum and Corrosive Sublimate, and explain the method of obtaining any two of these substances in a state of purity.

First Examination. Third Part. *Materia Medica and Therapeutics.* 1. Name the principal medicines which are commonly regarded as Diuretics and describe the modes in which they respectively act. Do these substances increase the aqueous portion or the solid constituents of the urine, or both? What effect upon the solid constituents of the urine is produced by copious water-drinking? 2. Are you acquainted with any substances which have the power of checking the general metamorphosis or disintegration of the tissues? If so, describe them; and explain their mode of action, and the cases in which their administration may be of service. 3. Quinine is sometimes adulterated with one or more of the following substances—gypsum, chalk, boracic acid, sugar, starch, and salicine. How would you detect these impurities? Supposing that any other acid had been mixed with Hydrocyanic Acid, how would you detect the adulteration? How would you determine the strength of any given specimen of Hydrocyanic Acid? 4. What is the preparation of Bismuth that is commonly used in medicine? How is it prepared? What are its uses? Describe the symptoms which would lead you to prescribe it and write a Latin prescription, (without symbols or abbreviations) for a draught containing it.

Second Examination. Anatomy and Physiology. 1. Describe the muscles which flex the leg upon the thigh. 2 What parts must be removed to expose the Pterygoid muscles? Describe these muscles, noticing their relations to adjacent structures, the source from whence they derive their nerves, and their actions. 3. Describe the boundaries and contents of the Axilla. (N.B. Candidates who prefer answering this question fully may neglect the two preceding questions.) 4. What are the respective numbers of the temporary and the permanent teeth? State, as nearly as you can, the period at which you would expect the different teeth to appear. Describe the structures which occur in the composition of a tooth. If you have studied Comparative Anatomy you may describe the peculiarities of dentition in the ruminants and in the rodents. 5. Describe the appearance and structure of the Villi, and explain the part which they are supposed to take in the process of intestinal absorption. 6. What are the different refracting media of the eye through which the rays of light must pass before they reach the Retina? Explain how these different media modify the direction of the rays. What are the conditions giving rise to Myopia and Presbyopia? Explain the way in which glasses remedy these defects.

Third Examination. [N.B. In answering the practical questions, the Examiners require every Candidate to specify the mode of treatment, which he is in the habit of adopting, and the doses of the medicines which he prescribes.] *Medicine.* 1. State what you know of the general doctrines of the Hæmorrhagic affections, especially as to their origin, causes, nature and varieties; and name the special hæmorrhagic affections. 2. Describe the general principles applicable in the detection of valvular disease of the heart, the diseases to which the valves of that organ are liable, and the means of detecting the particular valves affected, and the nature of the affection. 3. What advantages are gained by a selection of climate for invalids, what affections are likely to be benefited by such selection, and what climates would you select, 1st, for incipient phthisis, 2nd, for chronic bronchitis, in this country and abroad? 4. What are the different forms of Lithiasis, and what treatment would you adopt in each? 5. A robust young man was seized four days ago with headache and shivering. He went to bed and slept well all night, but on the following morning was seized with pain (severe and stabbing) below right nipple, his pulse then became rapid and skin hot. At the period of observation pulse 108, skin pungently hot, tongue covered with a thick white fur, rubbing sound with fine crepitation below right nipple. What disease does the patient labour under? What would your prognosis be? How would you treat such a case? 6. A patient æt. 50 is losing flesh and weight rapidly, subject to headache and palpitation, appetite voracious—urine plentiful; sp. grav. 1·040; sample of urine turned claret colour by liquor potassæ. What is the disease, and how would you treat it?

Fourth Examination. Surgery. 1. What is Iritis? What are its symptoms and diagnostic marks, the results if it proceeds unchecked, and the treatment? 2. What is Hydrocele? Mention its varieties. With what other tumours of the scrotum might it be confounded, and state how it may be distinguished from them? 3. Describe the various forms of the dislocation of the hip-joint. 4. Describe the process of formation of an Aneurism. Mention the methods of treatment. 5. A man falls from a height on the top of his head, and is taken up insensible. On examination no depression or other sign of fracture is found on the surface of the cranium. His breathing is laboured and his eye is insensible to light. He remains unconscious and his urine and fæces are passed involuntarily. At first blood, then watery fluid flows from the ear. Ultimately he dies comatose. What injury has been received? Explain how it has been produced, account for some of the most prominent symptoms. What appearances will probably be found on post motem examination?

Fifth Examination. Midwifery. 1. Mention the various circumstances which may make it proper to induce premature labour; and describe the different ways in which this may be effected, stating which you would prefer, and why so. 2. Recount the symptoms and signs of pregnancy, stating the circumstances which may in particular cases obscure the diagnosis. 3. What are the points in the history, the symptoms, and the physical signs of a case, which enable us to distinguish Ovarian Dropsy from Ascites? 4. A woman, on the day after a very severe labour, in which turning had to be performed, had a rigor, which recurred from time to time during the next week, being always followed by perspiration, and accompanied by gradually increasing asthenic fever. Her pulse was extremely rapid and feeble, her tongue dry and brown, her skin of a dusky yellowish colour; the lochia were fœtid, and the milk suppressed. She became very restless and sleepless, and died before the end of the fortnight, the region of the uterus having been only slightly tender on pressure. What was the nature of her disease, what the morbid appearances to be expected in the dead body, and what treatment ought to have been employed?

HEALTH OF LONDON—OCTOBER 6TH, 1860.

[*From the Registrar-General's Report.*]

		Births.	Deaths.
During week	Boys.. 982 / Girls.. 834	1816	1075
Average of corresponding weeks 1850-9		1465	1101

Among the causes of death were—bronchitis, 75; pneumonia, 68; phthisis, 121; small-pox, 6; scarlatina, 52; measles, 52; diphtheria, 12; hooping-cough, 39. The deaths from pulmonary diseases (exclusive of phthisis) were 157, being 44 above the corrected average.

Barometer:
Highest (Th.) 30·239; lowest (Fri.) 29·942; mean 30·068.

Thermometer:
In sun—highest (Wed.) 109·0 degs.; lowest (Mon.) 66·0 degs.
In shade—highest (Sat.) 65·3 degs.; lowest (Th.) 38·6 degs.
Mean—51·9 degrees; difference from mean of 43 yrs.—1·3 degree.
Range—during week, 26·7 degrees; mean daily, 15·6 degrees.

Mean humidity of air (*saturation*=100), 85.

Mean direction of wind, W, NW, & SW.—Rain in inches, 0·00.

TO CORRESPONDENTS.

T. L. We believe that you would be exempt from passing the preliminary examination.

Communications have been received from:—Mr. P. C. Price; Dr. P. H. Williams; Dr. Lionel Beale; Mr. Jno. Workman; Mr. Kempton; Mr. John Grantham; Mr. Erasmus Wilson; Dr. William Addison; Mr. Augustin Prichard; Dr. Adam Martin; T. L.; Mr. Henry Wilson; Mr. Henry Thompson; Mr. J. V. Solomon; Dr. A. T. H. Waters; Mr. John Barker; Dr. G. M. Humphry; Mr. Henry Ormerod; Dr. Nicol; and Dr. Peddie.

BOOKS RECEIVED.

[* *An Asterisk is prefixed to the Names of Members of the Association.*]

1. The Baths and Mineral Waters of Bath. By *Randle W. Falconer, M.D. Third Edition. London: Simpkin, Marshall and Co. 1860.
2. Report of Cases treated at the Bath General or Mineral Water Hospital, between November 1, 1859, and May 1, 1860.
3. On the Climate of Worthing. By *W. G. Barker, M.B. London: John Churchill. 1860.
4. A System of Instruction in Quantitative Chemical Analysis. By Dr. C. Remigius Fresenius. Third Edition. Edited by J. Lloyd Bullock, F.C.S. London: John Churchill. 1860.
5. A Practical Treatise on Diseases of the Urinary and Generative Organs (in both Sexes). By William Acton. London: John Churchill. 1860.
6. On Organic Polarity. By H. F. Baxter. London: John Churchill. 1860.
7. A Year-Book of Medicine, Surgery, and their Allied Sciences for 1859. London: New Sydenham Society. 1860.
8. Clinical Memoirs on Abdominal Tumours and Intumescence. By the late Richard Bright, M.D., F.R.S. London: New Sydenham Society. 1860.
9. De l'Amputation de la Cuisse dans l'Articulation de la Hanche, avec un Cas de Succès. Rapport lu à la Société de Chirurgie par M. H. Baron Larrey, sur un Memoire de M. Wm. Sands Cox. Paris: 1860.

ADVERTISEMENTS.

Fourth Edition, just published, price 2s. 6d., by post for 32 stamps.

A Guide to the Treatment of Diseases of the Skin; for the Use of the Student and General Practitioner. By THOMAS HUNT, Surgeon to the Western Dispensary for Diseases of the Skin. This edition contains two new chapters; one on the Vegetable Parasites of the Human Skin, the other on Metastasis in its practical bearings.

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